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PHYSIOLOGICAL REST*

WITH SPECIAL REFERENCE TO ARTHRITIS AND NERVE LESIONS AND TO THE MANUFACTURE OF APPLIANCES

BY

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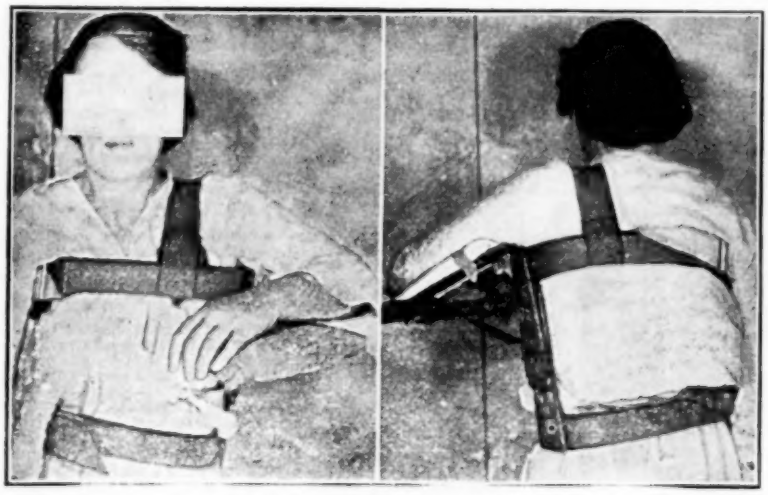


FIG 1.—Shoulder platform splint—physiologically unsatisfactory.

In this country during the nineteenth century the outstanding exponents of the use of rest in the treatment of disease were John Hilton and Hugh Owen Thomas. The former in his Arris and Gale Lectures of 1859–61 coined the phrase "physiological rest," which following Hunterian teaching he called "natural therapeutics." Hilton aimed at dissociation of physiological activity from a diseased or injured limb. He emphasized the dependence of both growth and repair upon rest. Hugh Owen Thomas (1876) completed Hilton's argument by showing how rest should be used. Thomas is known to many as the designer of numerous splints that go by his name. But more important than this were the principles he taught for their application.

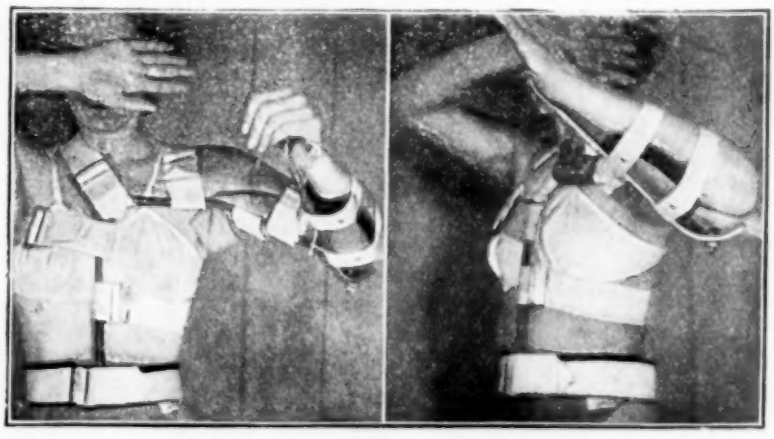
In this century Robert Jones achieved for Thomas the acceptance which was so largely denied him during life. Thomas overstated his case, yet for the conditions of his day the emphasis was needed just where he placed it, namely, upon "rest—enforced, uninterrupted, and prolonged." Conditions of medicine, as of life in general, have changed. Though Thomas's views need modification, he has important lessons for us now. While neither Hilton nor Thomas was an orthopaedic surgeon in the restricted modern sense, the ideas which they taught have resulted in the establishment of orthopaedics as a differentiated (not necessarily "specialist") field of medicine and surgery. In the aseptic evolution of technical surgery it has been the appreciation of the meaning of physiological rest which has provided the orthopaedic principle. ("The ultimate basis of the existence of something."—*O.E.D.*)

Definition

Physiological rest as we understand it to-day is a controlled process, giving immobilization—while safeguarding functional restoration—of a part or the whole of the body in the position most favourable for the biological processes of growth and repair to the maximum extent required for these processes in the particular disease or injury being treated. Physiological rest is not necessarily absolute or uninterrupted rest, though for some period it may be so. Its purposes are to promote healing by reducing the local physiological demands of the limb, by avoiding the aggravation of pathological processes, and by bringing to bear upon the lesion the whole general metabolic resources of the patient.

It must be arranged so as to prevent the deforming influences of uncontrolled or unbalanced muscular activity, of muscular atrophy, and of gravity. Relaxation and restriction of muscular activity is modulated according to the disease. In some conditions rest will alternate rhythmically with movement, the relation of one to the other varying inversely as healing proceeds. While pathological conditions are being relieved by rest, no extrinsic pathological factors should be introduced. Local treatment must be planned within the most favourable general background for physical and psychological health

FIG 2.—The adjustable Littler-Jones abduction splint. (Wingfield-Oxford type.)



* Abstracted from an Arris and Gale Lecture delivered at the Royal College of Surgeons on Jan. 3

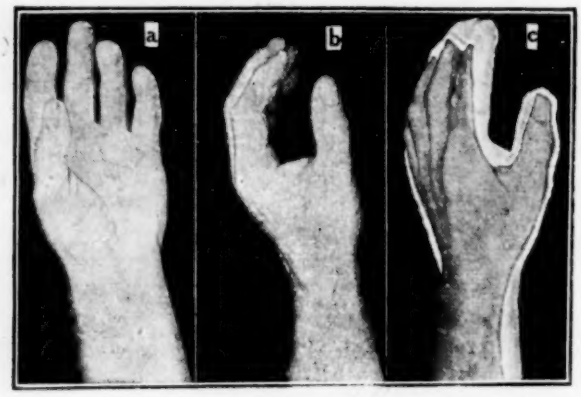


FIG. 3.—(*a* and *b*) The physiological position for the hand. (*c*) A plaster moulded splint in this position.

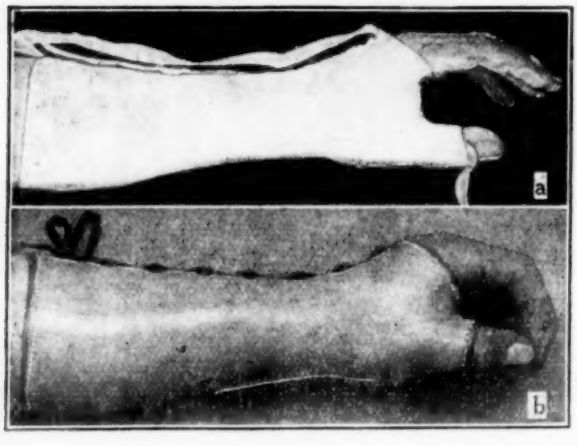
The local positions and their duration vary according to the different conditions being treated. Physiological rest in some form is an important requirement in the treatment of such varied conditions as fractures, dislocations, acute and chronic arthritis, tuberculosis, osteomyelitis, peripheral nerve injuries, infantile paralysis, burns, and the lacerated hand; but each calls for particular modifications, all of which are covered by the definition as stated. In chronic deforming arthritis in particular there is scope for improvement—for a clearer realization of what could be done to relieve local disease, to improve general well-being, to prevent deformity, and to maintain or restore function. Furthermore, in all fields there is need for better knowledge of splint design, construction, and usage.

Arthritis

Whatever may be the cause of chronic deforming arthritis, it is necessary to emphasize the interrelation of the morbid change in joints with the spasm and atrophy of muscles, and conversely of the contributory effects of deficient muscular activity upon joint degeneration, and, furthermore, the aggravation that the local process provides for the whole constitutional disease. Therefore, no matter what medical or physical therapeutic measures are applied, most joints affected with arthritis pass at various times through phases of activity which require immobilization.

While joints are acutely inflamed the most perfect immobilization is necessary and must be carried out until the inflammatory process has subsided and muscle spasm is relieved. The subsidence of pain and the diminution of local tenderness, swelling, and irritability are important guides. Defects in the application of rest are, first, not giving adequate attention to the posture in which the joint is placed; secondly, not guarding against the ill effects of movement, friction, pressure, constriction, traction, and gravity; thirdly, imperfect timing of the duration or modification of rest and, consequently, failure adequately to safeguard the maintenance or restoration of function when permissible.

FIG. 4.—Preparation of a semi-permanent block leather or plastic splint suitable for arthritis of the wrist or basal thumb-joints. (*a*) Plaster-of-Paris mould cut before removal. (*b*) Finished splint prepared on a metal casting.



For every normal joint there is a physiological position which is optimal for the average needs of the limb—a position in which its controlling musculature is able to exert its power to best advantage, a position in which muscles are poised for function and where none of the flexible capsular tissues is being stretched. The "physiological positions" of limbs are completely different from the so-called "anatomical positions," which merely provide standards of convenience and, clinically, are almost always unsuitable and indeed undesirable for treatment. The physiological position is not a fixed one but varies within a moderate range generally near the middle of the normal range of movement of the joint. The optimal position for the treatment of arthritic joints—modified from this physiological position—must be not only suitable for the pathological and therapeutic requirements but also such that if stiffness or ankylosis occurs it shall be in a position which will be best for function. In other words a nice compromise must be established between the optimal position for muscular competence and the later possible requirements of joint posture. These positions are enumerated in the following list:

Table showing the Optimal Positions for the Treatment of Arthritic Joints

Joint	Position	Remarks
Shoulder	Abduction 45° Flexion 30° External rotation 15°	Prevents stiffness in adduction; aids deltoid function; safeguards capsular integrity. The position is favourable for function in ankylosis
Elbow	Extended to about 100°	Safeguards the function of the elbow flexor muscles. If ankylosis is likely to occur modifications of the position recommended must be made according to the wishes of the patient, guided by his social circumstances and occupation. Where both elbows are involved one should be treated at a smaller angle
Forearm	Mid prone–supine position	Favours the restoration of either movement. If ankylosis occurs compensation for loss of pronation can be gained by abduction of the shoulder. Stiffness in supination is objectionable
Wrist	Extension 30°	The angle is measured upon the dorsum of the radius and of the third metacarpal
Digits and thumb	All joints flexed about 25° Abducted and opposed moderately	The hand as a unit is held in the position of semi-grasp, the thumb practically continuing the line of the lateral border of the radius, the phalanges of all digits in the position of natural relaxation—e.g., that assumed when the normal hand is loose at the side of the body. Capsular and ligamentous stretching is avoided. The vicious position of metacarpo-phalangeal hyperextension is avoided
Spine	Normal curves maintained	Flexion as well as lordosis of the lumbar spine to be avoided
Hip	Abduction only of sufficient amount to compensate for true shortening Rotation *nil* Flexion 20°	In arthritis extreme degrees of true shortening of a lower extremity are unlikely to be found. Flexion permits sitting if there is compensatory movement in the lumbar spine
Knee	Flexion 15°	Avoids posterior capsular stretching and resultant hyperextension instability. The competence of the quadriceps is adequately safeguarded
Ankle	Right-angle	If ankylosis appears inevitable the foot should be plantar-flexed 5° to 10° in men and a few degrees more in women to facilitate walking in high-heel shoes
Tarsal joints	Neutral as to inversion or eversion	While the arches of the foot should be preserved, it is better, should ankylosis be inevitable, to err in the direction of eversion, for the weight-bearing surface exposed to the ground is less likely to be troublesome than if the foot is inverted or cavoid
Toes	Maintain flexion of M.T.P. joints and extension of I.P. joints	Preserves intrinsic muscular activity; avoids metatarso-phalangeal subluxation and metatarsal pressure points

In my view these positions are worthy of acceptance universally as the standard "physiological positions." During the chronic stages of arthritic disease rest may still form a very important accompaniment of whatever other treatment is given. Here, however, there may be the added need to correct deformity. Finally, rest may even be used with the object of obtaining complete fixation or ankylosis of a joint, an end which may also be aided, of course, by surgical means.

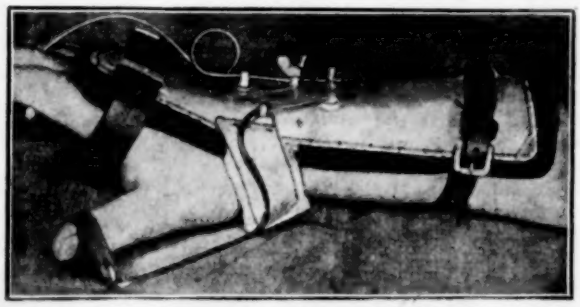


FIG. 5.—Brian Thomas extensor appliance (Exeter model).

Lower Motor Neurone Lesions

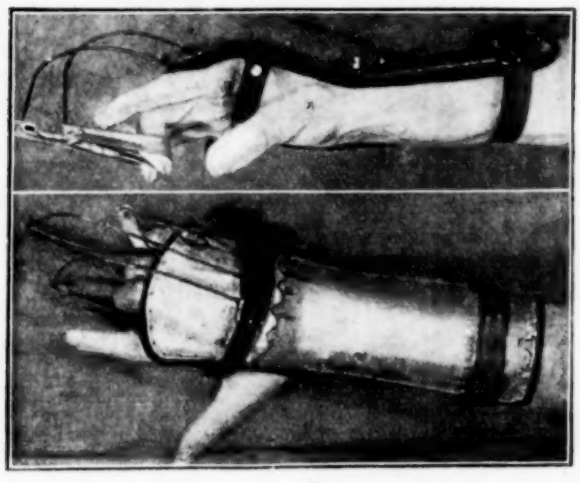
All that has been said about muscular competence in arthritic disease applies also in the treatment of nerve lesions whether peripheral or poliomyelitic. There is indeed in the muscular phenomena associated with poliomyelitis a striking similarity to the muscular condition in arthritis. In the past it would appear that too great emphasis has been given to placing paralysed muscles in positions of greatest shortening, to the detriment of joint efficiency and of muscular re-education. An intermediate position is far better. Knowledge of the normal mechanism of maintaining physiological tonus (the simplest and gentlest type of reflex skeletal muscular activity) suggests this. Studies of the changes in denervated muscle (Tower, 1939; Bowden and Gutmann, 1944) indicate the same need, as well as the advisability of maintaining relative rest in good positions rather than absolute rest. The positions already listed are those suitable for the treatment of an extensive lower motor nerve lesion as in poliomyelitis. Even in the treatment of *any* individual peripheral nerve lesion the relevant positions indicated would be compatible with adequate protection of the paralysed muscles and suitable for muscular re-education. In nerve lesions the application of rest and support is associated where possible with substitution devices for replacement or assistance of deficient muscles.

Design of Orthopaedic Appliances

Physiological rest is far more than the fixation or splinting of limbs. It is perhaps unfortunate that the word "splint" has come to mean an immobilizing device, for originally a "splint" was something that permitted rather than restricted movement. In mediaeval times the movable sections of suits of armour—for example, at the elbow or knee—were called "splints."

Appliances are used for the following purposes: (*a*) Support; to oppose gravity. (*b*) Immobilization or limitation of movement. (*c*) The correction of deformity. (*d*) The mobilization of joints. (*e*) The substitution of defective muscular action. Appliances must be designed so as to fulfil these purposes with maximum comfort and convenience. This involves lightness and accessibility; smoothness of anatomical fit; adequate strength; simplicity of construction; and economical and speedy manufacture. Surgical appliance making has been in the past, and still is, in the hands of commercial craftsmen who have done splendid work, yet who are often divorced from adequate medical guidance. Control by the surgeon is greatly needed, and in order to bring the maximum good to the majority modern methods of manufacture should be more readily applied.

FIG. 6.—Adaptation of same appliance for finger flexion deformities—e.g., ischaemic or arthritic.



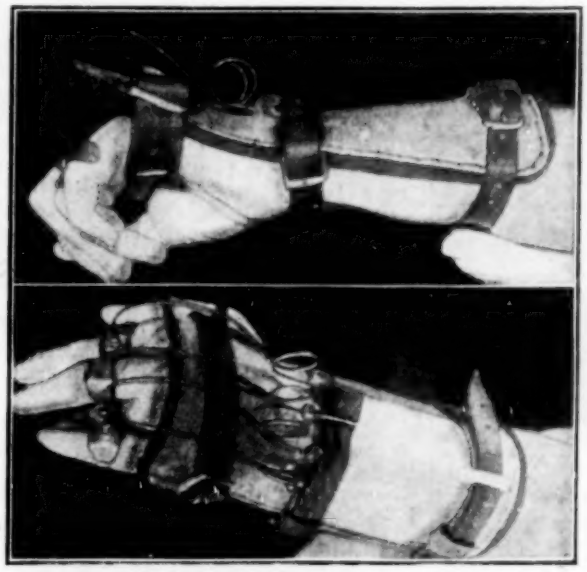


FIG. 7.—Further modification of springs having "push" action for the treatment of metacarpo-phalangeal stiffness.

The greater mobility of populations necessitates the production of apparatus using standard parts which will receive servicing in one part of the country as in another, as in the case of the motor-car. In surgical appliance making there should be less conservatism.

Improved efficiency and economy could be achieved by an increased use of regionalization, and the setting up of workshops or the development of industries using similar materials with standard designs for certain appliances or portions thereof and with standard schedules for measuring and ordering. Standardization need not be an obstacle to initiative and advancement.

The wedding of mechanical efficiency to comfort in use is often a serious problem. The Thomas bed-knee splint, in spite of various later useful modifications, still remains as finally used by its inventor, a supreme example of the solution of this problem. Makeshift appliances are a particular anathema in orthopaedics, and with them "fitness for purpose" is "more honoured in the breach than the observance." There should be no excuse for the application to patients of appliances in the unhygienic, much-used, second-hand state so frequently found. Good plaster-of-Paris technique has made this unnecessary. Indeed, for most short-term requirements plaster-of-Paris, properly applied, provides the almost ideal material and the most readily available instrument of physiological rest. It is not necessary here to discuss this at length, although an illustration of the use of plaster in the treatment of arthritis in the hand is given.

FIG. 8.—A new device for the treatment of flexion contractures of the interphalangeal joints, using multiple strips of window-curtain springs.

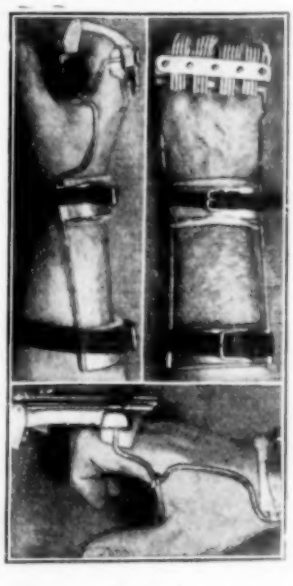


FIG. 9. — The ulnar intrinsic spring splint.

The Shoulder

A common appliance is the abduction splint used in the treatment of the stiff shoulder, in conditions due to neuro-vascular drag across the first rib, and for the support of the limb in injuries to the forearm and hand, etc. It is valuable in the correction and mobilization of deformity and for the support and re-education of weakened muscles. It is common to see the adaptation for these purposes of unsatisfactory appliances. In the one illustrated (Fig. 1) there is a mere platform with little adjustment: it fits merely where it touches and is uncomfortable and inconvenient.

The "Littler-Jones" frame (Fig. 2) is an improvement but in its original form did not provide a truly physiological position and lacked adjustability. At the workshops of the Wingfield-Morris Orthopaedic Hospital, Oxford, a great improvement was effected by division of the main frame at the elbow-joint and the addition of a forearm splint, articulating with the main frame beneath the elbow by means of a curved slotted rod with a bolt and nut permitting 90° variability in rotation. This appliance can be worn under the outer clothes and is equally suitable for wearing outside. Though in the model illustrated numerous straps are shown which distribute the weight of the apparatus, very few of these are essential. The lower part of the frame where it encircles the pelvis, instead of being made of metal rod, is fashioned from mild steel flat strip suitably padded to distribute pressure over a wide area. In some of the earlier versions of this Oxford modification pressure was experienced beneath the elbow, generally on the medial epicondyle or against the ulnar nerve. This difficulty has been overcome in a later model by dipping the framework downwards at this point. Here, therefore, is an appliance giving relative immobilization, and it is readily adjustable with splint benders because it is made of mild steel, thus making it possible to correct deformity. It is available for one side of the body only. Its chief defect is the presence of disagreeable vertical rods at the back and front of the trunk.

The Hand

In many ways the hand is at last receiving better care, particularly in fractures, wounds, and burns. The lessons from these fields should with modifications be applied to the treatment of arthritis. Various first-aid appliances of sheet metal are available, but none so far produced is satisfactory. In acute lesions of the interphalangeal joints, each digit has its own problems and must be treated very often individually. Plaster-of-Paris, which still supplies the most satisfactory material for immediate support, requires precision in application, and should have as much care devoted to it as a surgeon would expect to give to the application of a plaster jacket or spica.

FIG. 10.—A coiled spring toe-raiser for drop-foot, and a similar device reversed and acting as a plantar flexor spring for calf-muscle paralysis.

I illustrate (Fig. 3) the physiological position for the hand and a plaster splint which with careful interdigital moulding will give some measure of individuality to the digits. The hand provides an example of the use of plaster moulds from which hard casts (Fig. 4) may be prepared upon which plastic material, such as leather or synthetic resins, may be moulded for more permanent appliances.

The problems of arthritis in the less acute states bear certain resemblances to those problems seen in peripheral nerve and vascular injuries, in which stiffness and deformation occur, the latter largely due to defective muscle balance and capsular contracture. Improvements in appliances for the hand have been made as the result of experiences with peripheral nerve injuries during the war. Some are illustrated (Figs. 5–9). To one particular splint I want to draw attention because it involves a principle which though not new could be applied probably to many other problems throughout the body. We are familiar with appliances which replace to some extent the toe-raising spring for paralytic drop-foot, and the M.R.C. elastic extensor appliance for radial-nerve palsy. In the recent war Brian Thomas (1944) applied the principle in a modified form, with a spring-wire elevator applied to a dorsal metal plate upon the forearm and wrist (Fig. 5). Mr. A. M. Hendry (1945) has applied the principle of adding springs to appliances

FIG. 11.—(*a*) Paralytic scoliosis showing inability to sit without support. (*b*) The same patient with true spinal support taken from seat. (*c*) The same appliance in the course of manufacture.

for the replacement of intrinsic muscular activity in ulnar paralysis. In the ulnar splint illustrated (Fig. 9) the whole appliance is converted into one complete spring. The device is simple to make and apply, and has mechanical advantages in action. One advantage of all these appliances is the relative freedom of the palmar aspect for working purposes. A similar idea can be employed in the foot where, instead of an added spring, steel uprights of an ordinary short-leg appliance are converted into springs for the purpose of replacing either the dorsi-extensors or the plantar flexors of the foot (Fig. 10).

The Spine

The purpose to be achieved by a spinal support is essentially the limitation of movement. It is impossible for any appliance to limit all spinal movement. It is impossible to apply any force upon the exterior of the trunk in an ambulant patient so as to effect any material corrective influence upon structural defects. Support, however, for spinal deformity can be given to a considerable extent, as is shown in one case illustrated—a woman suffering from very severe paralytic scoliosis who, with an appliance, has been able to sit unaided with confidence and to manage her household affairs (Fig. 11).

This appliance illustrates the complexities of manufacture, the craftsmanship involved, and the need for close co-operation between craftsman and surgeon. The essential features are a spring steel pelvic band with spring steel uprights, two at the back and one at each side, the side struts supporting crutches for the axillae. These are joined by padded shoulder straps across the front of each shoulder to the back of the central posterior uprights. Pressure upon the pelvis is distributed through curved mild steel bands moulded above the iliac crests, and with downward extensions at the side of each hip to the seat. The support is strengthened by a moulded sheet of duralumin fitting into the concavity beneath the right ribs. Although such an appliance is not suitable for mass production, great benefit would accrue from standardization of some of its parts—e.g., in the provision of the special screws which are used and which, under present conditions, have to be made individually by hand on a power-driven lathe.

A simpler type of spinal "support," which is merely a brace to limit movement and assist muscular action, is the modified Taylor support made of leather-covered spring steel (Fig. 12). The advantages of this support are: simplicity of manufacture and convenience; the close relation of its uprights to the posterior surface of the spine, which controls antero-posterior movement; the firm hold at its base through the almost encircling steel band round the truss line; and the use of a suprapubic abdominal pad. Furthermore it is readily adjustable in shape by the use of bending irons. It is useful in the treatment of postural defects and adolescent kyphosis, in the convalescence of cases of tuberculosis of the spine, and in the after-care of spondylitis.

The Knee

In acute stages of arthritis of the knee nothing is better than a well-applied, cellulose lined, long-leg guarding plaster, which can be split as soon as, on clinical grounds, the condition appears to be subsiding. It is then available as a removable splint for the rest of the programme of rehabilitation. A wedging plaster also provides a convenient method of treating flexion deformity while permitting general activity and ambulation. In the later treatment of arthritis of the knee a variety of appliances are available, all applicable to many other pathological and traumatic conditions—e.g., the Thomas weight-relieving calliper.

There is, however, frequently need for an apparatus which permits flexion. Such appliances would be used more often if they were readily available. Here is a particular field for standardization in the interests of mass production, cheapness, and efficiency. One type of joint is shown (Fig. 13) with a locking device to maintain the appliance rigidly in extension when the patient walks. It requires the highest form of craftsmanship as at present made. Such an appliance often has a particular disadvantage—namely, that when it is flexed to a right-angle for sitting the sharp upper angle of the lower section, upon which the lock depends, causes a sharp upward projection which is liable to tear the patient's clothes. This difficulty has been overcome in the splint illustrated by placing the joint within a circular expansion of iron-work with an eccentric joint, so that the sharp upward angle disappears within the circle when the knee is completely flexed.

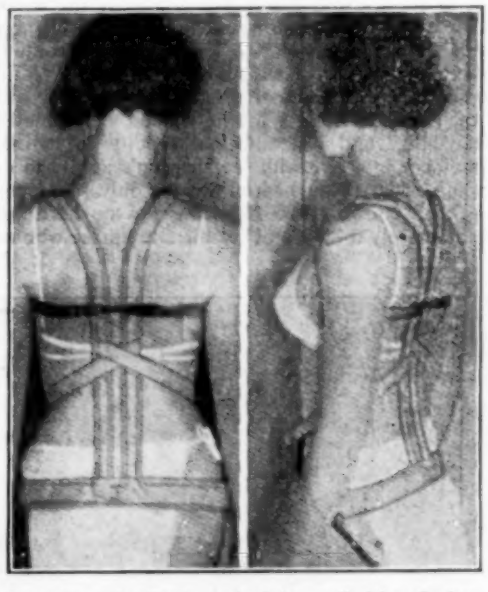


FIG. 12.—The Taylor spinal brace limiting flexion.

This appliance (Fig. 14) is made of hand-forged mild steel, the joint surfaces being case-hardened, so as to minimize the effects of friction. There is no reason why its parts should not be made in the rougher stages by the process of drop-forging from prefabricated dies. A suitable die would be expensive to a degree that few workshops would contemplate. If, however, some measure of uniformity could be decided upon throughout all the regional workshops of the country, perhaps with the aid of a large consumer such as the Ministry of Pensions, then a very important practical solution would be found.

Rest in Bed

Sending a patient to bed is the commonest form of rest used in treatment. As almost universally applied it is unphysiological. Bed treatment is only really properly understood and carried out in the care of the really ill patient. For the chronic sick it is sadly misused. The depression of the chest, the compression of the abdominal viscera, long-standing flexion of the lumbar spine, extension of the knees—these are a few of the common defects of the chronic case allowed to sit up in bed. Improvement in our beds for the chronic sick is much needed, but a good deal can be done to make it physiological by providing suitable support and by giving frequent changes to complete recumbency; by improving abdominal tonus and respiratory excursion; by the metabolic stimulus of fresh air, adequate diet, and a proper fluid intake; and by psychological care and occupation. Thus suitable conditions might be provided for the care of individual joint mechanics and for the associated medical treatment of the disease. The Hippocratic principle that the doctor should "do no harm" should be interpreted widely to include the prevention of such results of decubitus as the not uncommon development of renal calculus in orthopaedic patients. In applying physiological principles to the treatment of patients in bed we see the commonest illustration of the principle of physiological rest.

Materials

The work of appliance manufacture is at present hampered by shortage of certain materials, particularly in the grades required. A hope for the future is that recent metallurgical and engineering developments and new plastics will help to solve many of our problems. Of the metals used for splint framework, ferrous compounds are still the commonest, and wrought iron and steel are usual. Steel preponderates, and there are many different qualities for our purposes, ranging from tough malleability to rigid hardness, from mild steel to spring steel.

There seems to be some misunderstanding of the use of iron and steel in splint construction and this appears to have originated with the work of H. O. Thomas. The conditions of manufacture of his day justified his view-point. Mild steel, made possible by the Bessemer process, was not available until the end of Thomas's life. What he wanted was a metal frame with malleability and just sufficient rigidity to maintain the position but not interfere with the surgeon's ability to mould it with bending irons. Wrought iron was the only suitable material —steel as then known (1876–1891) was far too hard and rigid. This does not apply to-day, and yet there are those who advocate

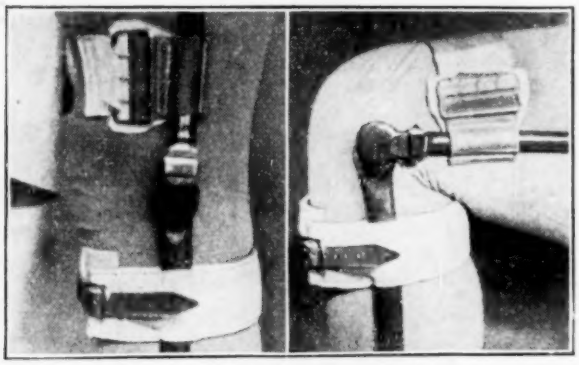


FIG. 13.—The jointed knee calliper.

the use of wrought iron, strangely, for the purpose of its supposed "rigid, unyielding" nature and "not of steel, which would alter in shape under pressure" (McMurray, 1937).

Experimentally it can easily be shown that a mild steel rod, of equal calibre to one of wrought iron, has sufficient malleability and is far superior in rigidity. This may seem a small point, yet the recent war has shown that surgical appliances

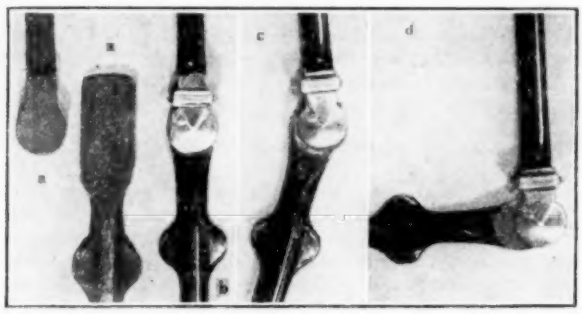


FIG. 14.—Jointed calliper locking device. (*a*) The rough hand forgings. (*b*) The finished joint locked. (*c*) Semi-flexed, showing the locking spike disappearing within the circle. (*d*) In further flexion; complete disappearance of spike. Note eccentric movement which permits this and provides easing of pressure upon the calf band in flexion.

have to be made on occasion by people previously inexpert and who should be guided in the use of the most readily available materials if these are superior to those less easily obtained.

Lightness is a consideration of importance, and the use of duralumin has been advocated. Unfortunately, to provide adequate strength it must be relatively bulky, and it will not stand up to friction. Consequently in jointed appliances the moving surfaces must be faced with hard steel. The result is that appliances thus made are scarcely, if at all, lighter than those carefully forged from mild steel. Processes not yet fully explored are the use of tubular metals and electric welding.

Covering materials provide a difficulty at present owing to the scarcity of supply, particularly of leather. Here in any case improvements are needed in the use of materials which can be moulded upon curved apparatus without folds and which at the same time will be non-irritant to the skin. Perspex and polyvinyl chloride offer possibilities which are beginning to be used (MacGowan, 1943). A noteworthy example is in the work at the Royal National Orthopaedic Hospital at Stanmore reported by Scales and Herschell (1945) and Cholmeley (1946).

Summary and Conclusions

In discussing the present-day change in orientation upon the therapeutic use of rest I have attempted to define our conception of Hilton's term "physiological rest." I have emphasized Thomas's teaching that the surgeon must know how to apply rest physiologically and must also have an intimate knowledge of splint construction and management. In describing a few methods and appliances used in arthritis and nerve lesions I have tried to show some of the difficulties and to indicate the general lines for future research and practical improvement. Apart from improved design and materials, the co-operation of regional surgical workshops (with some measure of standardization) should lead to greater economy and efficiency as well as comfort for the patient. The amount of standardization need not thwart enterprise or originality.

Those of us who consider improvements in design should maintain an attitude of humility. The human form has not altered during the past hundred years. Before the modern advancement of surgical technique many great minds had devoted themselves to this subject. Study of the old masters (Bonnet in particular) reveals how far they had got. Most "new" ideas have been thought of before. Advance chiefly will come in the utilization of new manufacturing processes and new materials.

It is to be hoped that in the museum of the Royal College of Surgeons there may be established a collection, not of "museum pieces" but of well-proved basic surgical appliances with suitable illustrations of their use. Such a section could be of great teaching value.

In any discussion of orthopaedic appliance making acknowledgment should be given to the originality and skill of commercial craftsmen such as Critchley, Ernst, and many others. In addition, I would like to thank my assistants who have helped in the production of this paper; Mr. H. Salz, M.R.C.S., Miss E. L. Burrow, S.R.N., Miss M. Green, Mr. A. Reaney, M.S.R., and above all Mr. F. W. Suter (a "master-craftsman") of the Orthopaedic Workshops, the Princess Elizabeth Orthopaedic Hospital, Exeter.

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SOUTH PACIFIC BOARD OF HEALTH

A South Pacific Board of Health, with headquarters in Suva, is established under an agreement which has been signed by the Prime Minister of New Zealand and the Governor of Fiji and High Commissioner for the Western Pacific High Commission. The adoption of a long-range policy of progressive alignment of the medical and health services of Fiji and the Western Pacific High Commission and those of New Zealand and the Dominions' island territories was one of the recommendations made in the Watt-Lambie report on medical services in Fiji. The agreement gives practical effect to this policy, and is the result of negotiations which have been in train since the publication of the Watt-Lambie report early in 1944. It applies to Fiji, the British Solomon Islands Protectorate, the Gilbert and Ellice Islands Colony, Western Samoa, Cook Islands, and the Tokelau Islands. The Board, which will be advisory, will assist the participating administrations in the more effective control of disease and the promotion of health in their territories, and will co-ordinate research and the compilation of statistics on the incidence of disease, with particular reference to the maintenance of standardized quarantine procedure. The Board will also assist in the selection, posting, training, and service conditions of the medical staff.

The agreement contemplates the establishment of a medical centre in Fiji, including a new central medical school and nurses' training school. The secondment of New Zealand nurses to Fiji and other territories will be arranged by the Director, Division of Nursing, New Zealand.

EFFECT OF CERTAIN SOCIAL CONDITIONS ON THE HEALTH OF SCHOOL-CHILDREN

BY

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The school-children from Salford included in the vitamin-feeding test in 1943–4, already reported (Bransby *et al.*, 1946), numbered 891. Data covering a wider field and involving a larger number of children were, however, obtained; these were found on examination to be of some interest, being concerned with the relationship between home, family, and economic conditions on the one hand and the rate of growth, certain medical and dental conditions, and school attendance on the other. Involved in this analysis were 2,945 children, 5 to 14 years old, attending 23 elementary schools in Salford, and 82 boys evacuated from Salford to Whiteacre camp school, in Lancashire. They were weighed, measured, and medically examined early in 1943 and again one year later. The weighings, measurings, and medical and dental examinations were carried out in the same way as for the vitamin-feeding test. In addition, information obtained from data collected in Stoke-on-Trent, where the vitamin-feeding test was also carried out, relating absence from school with certain social conditions, is also included. It was the intention to present as full a set of results for Stoke as for Salford, but unfortunately the bulk of the Stoke results were destroyed by accident in the wartime drive for salvage.

Social Conditions and Absence from School

The social matters inquired into were home and economic conditions—each of which was graded good, fair, or bad—the number of children in the family, and absence from school and the reasons for it. Classification of the home conditions was made by individual teachers who knew the children well. In Salford there are few schools with a mixed population of high and low income groups, so the grading into economic groups was a fairly easy matter for the teachers. A sample check of the gradings was made by experienced health visitors, and it was found that their independent judgment corresponded well in the main with that of the teachers.

Clinical and Dental Examinations

The clinical conditions recorded were those which might in some way be affected by the general state of nutrition or specific vitamin deficiencies. The examination consequently was not a complete medical examination covering every aspect of health. The clinical examination paid attention to: state of nutrition (good, fair, or poor), round shoulders, pot-belly, lordosis, winged scapula, knock-knees, bow-legs, scoliosis, deformed chest, physique, obesity, chest rales and cough, ear discharge, goitre, angular stomatitis, cheilosis, pityriasis sicca, pallor of mucous membrane, styes, blepharitis, simple conjunctivitis, phlyctenular conjunctivitis, circumcorneal infection, transverse ridging of nails, nails bitten, brittle nails, coarse and dry hair, impetigo, boils, chilblains, other sepsis, seborrhoea, follicular keratosis, and dryness of the skin. At each examination the conditions were graded 0, 1, 2, or 3, according to their presence and severity.

The dental conditions taken into account were: general tone of the gums and the presence of gingivitis, haemorrhage, tartar, mottling, and caries. The extent of mottling, haemorrhage, tartar, and caries was graded 0, 1, 2, and 3, and gingivitis 0, 1, 2, 3, and 4, in the manner of King, Francklyn, and Allen (1944). The general tone was graded "firm" or "flaccid." All the teeth present in the mouth were examined and graded individually for caries and mottling, and the average caries and mottling per tooth present were calculated. The examination for general tone of the gums, gingivitis, haemorrhage, and tartar was limited to the regions $\frac{2|1|1|2}{2|1|1|2}$, each of these teeth being examined and graded individually.

For the clinical conditions the data of the boys and girls were analysed together; for the dental conditions the data were analysed for boys and girls separately in the age ranges 5–7, 8–10, and 11–13 years.

The average incidence of the above clinical and dental conditions was calculated in children grouped according to the number of children in the families to which they belonged, home conditions, economic conditions, and nutritional grade. Two criteria were used to ascertain if the social circumstances and nutritional classification had any effect on the incidence of the clinical and dental conditions—the trend and consistency of the results, and formal tests of significance of the difference between the best and the worst groups of each of the three social classifications.

Results

To avoid the presentation of a large number of tables a statement of results is here given.

Clinical and Dental Conditions

The incidence of the following clinical and dental conditions increased with worsening social conditions; the figures in parentheses show the extent to which the incidence of the condition among children in bad home or economic conditions or belonging to large families exceeded the incidence among children in good home or economic conditions or belonging to small families. Ranges are given for the figures (in parentheses) because they relate to the three factors, home and economic conditions and number of children in the family, and also breakdowns, according to sex and age. The percentages for all these breakdowns fall, for each of the clinical conditions mentioned, within the ranges given: impetigo (40–60%), sepsis (56–276%), angular stomatitis (36–128%), pityriasis sicca (14–28%), coarse and dry hair (50–400%), dryness of the skin (20–64%), round shoulders (4–71%), deformed chest (37–156%), tartar (75–167%), gingivitis (6–287%), and general conditions of the gums (0–250%). The incidence of caries increased among boys (11–22%). The gradings of nutrition and physique also worsened with decline in social conditions. The incidence of transverse ridging of the nails, which was at one time suggested as a criterion of poor nutrition, decreased with worsening social conditions. For the other particulars there was no discernible variation with social conditions.

Growth

Table I shows the number of children in the various sex, age, and social groups. The heights and weights of children of corresponding ages in good economic conditions, good home conditions, and belonging to families with one or two children were practically the same, and conform to those given in Table II. In Table III, for boys and girls of the age groups 5–7 years, 8–10 years, and 11 and more years, are given the differences in height and weight between those in (1) good and bad home conditions, (2) good and bad economic conditions, and (3) belonging to families with one and two children and families with six or more children.

TABLE I.—*Number of Children in Various Sex, Age, and Social Classes*

	Boys			Girls		
Age (years):	5–7	8–10	11+	5–7	8–10	11+
Home conditions:						
Good	189	315	193	184	250	246
Fair	179	346	248	185	265	155
Poor	45	29	17	35	44	20
Economic conditions:						
Good	124	157	158	105	142	177
Fair	170	362	214	185	262	158
Poor	119	171	86	116	152	87
Children in family:						
1, 2	207	307	214	191	231	183
3, 4, 5	173	293	187	179	246	189
6 or more	33	90	57	35	78	52

The heights and weights of children in bad economic or home conditions or belonging to large families were consistently less than those of children in good home or economic conditions or belonging to small families. Thus children in good home conditions were 1.7–2.6 in. (4.32–6.60 cm.) taller and 2.0–9.3 lb. (0.91–4.22 kg.) heavier than children living in bad home conditions, children in good economic circumstances were 0.6–1.4 in. (1.52–3.55 cm.) taller

TABLE II.—*Approximate Height and Weight of Children with Good Home or Economic Conditions or Belonging to Small Families*

Age (years):	Boys			Girls		
	5–7	8–10	11+	5–7	8–10	11+
Height (in.) ..	45·4 (115·3)*	50·6 (128·4)	55·2 (140·2)	45·3 (115·0)	50·1 (127·2)	55·8 (141·7)
Weight (lb.) ..	46·9 (21·27)	59·0 (26·77)	74·8 (33·93)	45·7 (20·73)	57·2 (25·95)	76·3 (34·61)

* The figures in parentheses in Tables II–IV represent the metric equivalent—height in centimetres, weight in kilogrammes.

TABLE III.—*Effect of Social Conditions on Initial Height and Weight*

Age (years):	Boys			Girls		
	5–7	8–10	11+	5–7	8–10	11+
Height:						
H.C. good minus bad (in.) ..	2·5 (6·35)	1·7 (4·32)	2·6 (6·60)	2·3 (5·84)	1·7 (4·32)	2·3 (5·84)
E.C. good minus bad (in.) ..	0·9 (2·29)	0·6 (1·52)	0·9 (2·29)	1·1 (2·79)	0·8 (2·03)	1·4 (3·55)
No. of children: 1, 2 minus 6+	1·8 (4·57)	0·8 (2·03)	1·0 (2·54)	1·4 (3·55)	1·1 (2·79)	0·6 (1·52)
Weight:						
H.C. good minus bad (lb.) ..	3·8 (1·72)	3·8 (1·72)	9·0 (4·08)	3·4 (1·54)	2·0 (0·91)	9·3 (4·22)
E.C. good minus bad (lb.) ..	1·6 (0·72)	0·5 (0·23)	2·5 (1·12)	0·5 (0·23)	2·3 (1·04)	5·6 (2·54)
No. of children: 1, 2 minus 6+	3·6 (1·63)	2·0 (0·91)	6·6 (2·99)	1·3 (0·59)	2·4 (1·09)	2·0 (0·91)

H.C = Home conditions. E.C. = Economic conditions.

and 0.5–5.6 lb. (0.23–2.54 kg.) heavier than those in poor economic circumstances, and children in small families were 0.6–1.8 in. (1.52–4.57 cm.) taller and 1.3–6.6 lb. (0.59–2.99 kg.) heavier than those belonging to large families.

TABLE IV.—*Effect of Social Conditions on Height and Weight During a Year*

Age (years):	Boys			Girls		
	5–7	8–10	11+	5–7	8–10	11+
Height increases:						
H.C. good minus bad (in.)	−0·21 (−0·53)	−0·01 (−0·025)	0·18 (0·46)	−0·21 (−0·53)	0·05 (0·125)	0·23 (0·58)
E.C. good minus bad (in.)	0·22 (0·56)	0·12 (0·30)	0·69 (1·75)	0·20 (0·51)	0·25 (0·64)	0·48 (1·22)
Weight increases:						
H.C. good minus bad (lb.)	0·47 (0·21)	−0·56 (−0·25)	2·95 (1·36)	0·97 (0·44)	0·60 (0·27)	4·33 (1·96)
E.C. good minus bad (lb.)	−0·13 (−0·06)	−0·70 (−0·32)	1·83 (0·83)	1·02 (0·46)	−0·82 (−0·37)	2·88 (1·31)

H.C. = Home conditions. E.C. = Economic conditions.

Table IV shows the annual height and weight increases of boys and girls aged 5–7 years, 8–10 years, and 11 or more years, grouped according to home conditions and economic conditions. In good economic conditions the growth of children was better in all six age groups by 0.12–0.69 in. (0.30–1.75 cm.) than that of children in bad economic conditions, but there was no consistent difference between weight increases, except for boys and girls of 11 years in good economic circumstances, whose increase was 1.83–2.88 lb. (0.83–1.31 kg.) better than for similar children in poor economic circumstances. On the other hand, the children living in good home conditions did not grow in height any better than those in poor home conditions, but the weight increase was better in five out of the six groups by 0.47–4.33 lb. (0.21–1.96 kg.).

Absence from School

All practicable steps were taken to ensure that the reasons for absence from school were accurately recorded. Both in Stoke and in Salford the services of the health visitors or school nurses were used in checking the reasons given for absence. The absences were grouped into the various categories listed in Tables V and VI by collaborators in Stoke and Salford, and this may have caused some lack of uniformity and account in part for the differences found between the two areas. Consequently comparison between the results for these towns can only be made with caution.

Table V shows, for boys and girls living at home in Stoke and Salford, the number of days' absence from school for various causes and the percentage of the total absenteeism due to each cause, and Table VI shows the absenteeism of children grouped according to sex and age.

TABLE V.—*Absenteeism, Days per Child, due to Various Causes*

Cause of Absence	Stoke-on-Trent		Salford		Camp School
	Boys	Girls	Boys	Girls	
Number	510	410	1,561	1,384	
Respiratory ..	5·2 (21%)	7·4 (26%)	12·0 (30%)	13·9 (31%)	2·1
Skin	2·4 (9%)	2·1 (7%)	2·2 (6%)	2·0 (5%)	1·5
E.N.T.	1·7 (7%)	2·6 (9%)	2·6 (7%)	4·1 (9%)	2·5
Gastro-intestinal ..	1·1 (4%)	1·4 (5%)	2·5 (7%)	2·9 (7%)	1·4
Eyes	0 (0%)	0·2 (1%)	0·1 (0%)	0·2 (0%)	0
Infections	3·1 (12%)	2·2 (8%)	3·7 (9%)	3·7 (8%)	0·5
Unspecified ..	4·7 (18%)	7·3 (26%)	2·1 (5%)	3·2 (7%)	1·4
Injuries	1·1 (4%)	0·9 (3%)	2·0 (5%)	1·5 (3%)	0·4
No illness ..	6·4 (25%)	4·1 (15%)	12·2 (31%)	12·7 (30%)	13·8
Total ..	25·7	28·2	39·4	44·2	23·6

Table V reveals that in Salford respiratory conditions and causes other than illness each accounted for about 30% of the total absenteeism, the other 40% being due to the remaining seven causes. In Stoke, absenteeism due to respiratory conditions was 21–26%, and causes other than illness 15–25%. In Salford, absence due to unspecified illness amounted to 18–26% compared with 5–7%. This discrepancy may have been due to the grouping of the various illnesses into different categories in the two localities. Total absenteeism comprised about 12% of the possible school attendance in Stoke and 18% in Salford.

Sex and Age

Girls had somewhat more absenteeism—about 10% in Stoke and 15% in Salford—than did boys. The incidence both of respiratory and of E.N.T. conditions was consistently greater for girls than for boys.

Absenteeism was greater among young children than among older ones. Thus for children aged 5–7 years, compared with those aged 11 or more, absence was about 5 days (15%) greater in Salford and about 20 days (90%) greater in Stoke. Absence due to infectious disease was considerably greater among young than among older children, and the younger had a somewhat higher incidence of respiratory complaints. In Stoke the incidence of unspecified illness was also much greater among young than among older children. Older children in Salford were somewhat more often absent owing to causes other than illness—about 35%, compared with about 25% of total absence for younger children—but the difference was not so marked for Stoke.

Social and Economic Conditions

In Salford the number of children in the families had no effect on absenteeism, but among children with bad home conditions absenteeism was 30 to 40% greater than among those with good home conditions, owing to some extent to a greater incidence of skin conditions, but mostly to absenteeism from causes other than

TABLE VI.—*Absenteeism, Days per Child, due to Various Causes according to Sex and Age*

Age (years):	Stoke-on-Trent						Salford					
	5–7		8–10		11 or more		5–7		8–10		11 or more	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Cause of absence:												
Respiratory ..	7·6	10·2	5·6	7·9	4·0	5·5	13·3	15·8	11·8	12·2	9·9	14·3
Skin	5·4	3·7	1·4	2·4	1·8	0·9	2·3	2·7	1·8	1·8	2·5	1·7
E.N.T.	2·4	4·6	1·2	1·4	1·8	2·6	2·6	4·5	2·7	3·7	2·7	4·1
Gastro-intestinal ..	0·7	0·7	1·0	1·3	1·3	1·8	2·5	2·9	2·5	2·6	2·5	3·2
Eyes	0·1	0·5	0·2	0	0	0·3	0	0·1	0·2	0·2	0·1	0·2
Infections	8·9	6·3	2·7	1·1	1·1	0·8	7·9	7·3	2·3	2·3	1·8	2·0
Unspecified ..	10·2	11·2	2·7	6·4	3·8	5·9	2·0	3·0	2·1	3·0	2·2	3·8
Injuries	1·2	0·5	1·2	1·3	0·9	0·7	2·7	1·8	1·5	1·4	1·6	1·3
No illness ..	4·4	5·7	7·2	2·9	6·7	4·3	11·3	12·1	11·5	12·1	14·0	14·2
Total ..	40·9	43·4	23·2	24·7	21·4	22·8	44·6	50·2	36·4	39·3	37·3	44·8

illness. Among children in good home conditions 25% of the total absenteeism was due to causes other than illness; among children in poor home conditions the proportion was 36 to 41%.

Nutrition

Children graded as of poor nutrition in Salford had about 15% more total absenteeism and absenteeism due to illness than had children of good nutrition, while in Stoke the differences between the children with good and those with poor nutrition was 30 to 40%. Absenteeism among boys living in Whiteacre camp school was considerably less than that of boys living at home at Salford—total absenteeism being 23.6 days, compared with about 37 days—and that due to illness 9.4 days, compared with about 24 days for boys aged 7–14 years in the two localities. The relatively high absenteeism through causes other than illness was due to the fact that the children lived in the camp school and occasionally visited relatives and friends. The difference in the sickness rate of the Salford children from that of the camp school children was due almost entirely to absence from respiratory conditions; this averaged about 12 days for the Salford boys and 2 days for the Whiteacre camp school boys.

Discussion

Analysis shows that there is a relationship between on the one hand social conditions as represented by home and economic conditions and the number of children in the family, and on the other hand the health of the Salford children as represented by the somewhat limited range of conditions noted at the clinical examination and by the growth data—the poorer the social conditions the worse the health levels. Yudkin (1944), in a study of the nutritional condition of children in Cambridge, found that children in a school in a fairly poor district, compared with those in a school in a comparatively well-to-do district, were on the average 0.8 in. (2.03 cm.) shorter, and 2.6 lb. (1.18 kg.) lighter, and had 2% less haemoglobin and a grip 1.25 kg. weaker. The absenteeism data suggest that social conditions did not affect absence from school due to illness, although with worsening home conditions there was a substantial increase in absence due to causes other than illness. It is important, however, to note (*a*) that absenteeism among children graded "poor nutrition" was considerably greater, both in Stoke and in Salford, than among those graded "good nutrition"; and (*b*) that there was a general lowering of the nutritional grading with worsening social conditions. Further, the average number of days' absence through illness among the camp school children was 9.4, compared with about 24 for boys living in Salford and about 14 for boys living in Stoke. It is also noteworthy that total absenteeism in Salford was about 65% greater than in Stoke, and that due to illness about 33% greater. The amount of absence due to illness, particularly respiratory conditions, appears to vary considerably from locality to locality, and the point arises as to how much of this is due to bad environment. It is not suggested that figures for the camp school children, extending as they do over one year only, represent the long-term morbidity rate of children living under such conditions, but the difference between them and the figures for Stoke and Salford at least suggests some association between morbidity of children and their living conditions.

Summary

Data of 2,945 children aged 5–14 years attending day schools in Salford, and of 82 children living in a residential camp school, were analysed to show the relation between home, family, and economic conditions on the one hand and rate of growth, state of health, and school attendance on the other. Information obtained from data collected in Stoke-on-Trent relating absence from school with certain social conditions is also included.

An increase in the number of children in the family and worsening home and economic conditions were associated with a reduced rate of growth and state of health. Absence from school was not related to family size, but increased with worsening home conditions and state of nutrition. There was greater absenteeism among young than among older children and among girls than boys.

Absence from school from all causes and from illness was greater in Salford than in Stoke-on-Trent, and absence in both localities was greater than that in the residential camp school, which suggests that environmental factors were at least in part responsible for absence from school and for child morbidity.

We wish to express our thanks to the parents of the children participating in the test and to the staffs of the Education and Health Departments of Stoke-on-Trent and Salford for collecting the experimental data. Thanks are also due to Mr. S. H. Quayle, Controller, Statistical Branch, Customs and Excise, for analysis of the data on Hollerith machines, and to Dr. H. O. Hartley, of the Scientific Computing Service, for computations. Particularly we wish to thank Dr. V. C. Veitch for her assistance after the retirement of the late Dr. D. M. MacKecknie.

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THE EVALUATION OF BARRIER CREAMS

BY

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The ability of barrier creams to prevent deleterious substances reaching the skin of operatives has been amply proved in practice, and it can be asserted that the so-called "invisible glove" produced when these preparations are properly applied has done much to limit the incidence of dermatitis. Much has been written and spoken about the principles which must be obeyed if a satisfactory barrier cream is to be arrived at. Some formulators have included substances with the idea of increasing the scope of these preparations, but sometimes these additions are based on premises which are either hypothetical or, at the best, ill-founded. Others have attempted to medicate them, but whether in doing so the product has an added value as a protective cream is quite another matter. Although it may be that in theory a universal elixir could be made, the experience of those whose job it is to produce an article of real worth leads to the sound belief that it is always better to keep the product as simple as possible and to concentrate on making one which is as perfect as it can be to fulfil the essential requirements.

Barrier creams are expected to form a barrier against deleterious substances. That is the essence. They are not supposed to be cure-alls for any local erythema. They must be easy to apply and they must leave a coherent film which is impervious to extraneous substances. But they must be comfortable in wear. They should not produce a feeling in the mind of the user that the part anointed is encased; the invisible glove should preferably be imperceptible. Neither should the film be tacky or greasy so that it can contaminate any article which has to be handled; it is very important that articles handled should not slip from the grasp. Naturally, too, the film must be flexible so that it does not crack or form fissures. A case can be made out for the inclusion of substances which can neutralize or render inert specific irritants, but although in some instances this is advisable, and indeed desirable, the efficiency of a film of barrier cream to do this cannot be other than of a low order. If it is remembered that a proper film is only about 10 to 20μ in thickness it will quickly be appreciated that the amount of neutralizing agent per square centimetre of skin surface is very small. Such additions cannot, therefore, deal with more than traces of the irritant; they are really useful only when the irritant is highly toxic even when present in minute quantities. Finally, in view of the general reluctance of people to take prophylactic measures, the interest of the user has to be titillated, and this can be done in no small measure by making the cream pleasant in appearance and texture. A minute trace of an odoriferous principle is a useful addition provided that it does not lead to the scenting or perfuming of the product which is to be handled.

Owing to the diversity of industrial processes and products it is not possible to make one cream which can give protection against everything. Neither is it a practical proposition to make individual creams for every specific hazard. The compromise is to classify the known deleterious substances into groups. Investigation suggests that four types of barrier cream are necessary, and the four classes of hazard are: (1) irritant dusts; (2) aqueous materials; (3) solvents and oils; (4) aqueous and oil-containing substances. Barrier creams which will give protection against the first class must produce a coherent film which adheres well to the skin and which will prevent the dust

penetrating or gaining access into the hair follicles and sweat ducts. The film must be non-tacky and non-greasy. Barrier films which are to give protection against the second class must produce a flexible water-repellent and water-resistant film, free from tackiness and greasiness. Protection against solvents and oils—class 3—can be obtained only if the film is composed of oil-insoluble materials. Provided this is accomplished and the requirements as to adherence, flexibility, and non-tackiness are fulfilled, a satisfactory protective barrier can be produced. The fourth class is probably the one which raises most difficulties, since the two main components, water and oil, are diametrically opposed in their properties, and their simultaneous presence makes the formulation of an efficient barrier cream difficult. However, by a careful compromise creams can be made which, when allowed to dry out into a film, have a reasonably high resistance to both water and oil.

The measurement of the efficiency with which a barrier cream prevents deleterious substances from producing dermatological rashes or oedemas can be carried out in a number of ways. The most logical one is the clinical experiment; but, with this form of appraisal, reliable estimations of value can be obtained only as a result of the statistical analysis of a large population. The inherent difficulties in mass clinical trials are too numerous and well known to be described here, although it is to be borne in mind that such tests are, in the long run, the final arbiters of efficiency.

The quick assessment of value demands some form of laboratory procedure of a somewhat empirical nature. When the conditions under which the film of barrier cream has to fulfil its functions are considered, it is immediately obvious that to devise an apparatus in which all these conditions—such as flexibility, resistance to friction, adherence to a non-rigid base which is subject to varying degrees of moisture on one side owing to perspiration, etc.—are imposed becomes wellnigh impossible. Even if such an apparatus could be designed it is most unlikely that answers free from ambiguity would be produced. It is really far better to use simple tests and simple apparatus which, while functioning in quite an artificial way, are more likely to yield consistent results. Provided that the artificiality is realized and that no attempt is made to read into the answers anything more than the test professes to do, then such means of evaluating barrier creams are justified and of considerable value.

Qualitative Tests

One of the means of testing consists in spreading the barrier cream on a suitable glass surface and allowing it to dry into a film. This film is then carefully taken off the glass and immersed in the liquid against which it is supposed to be a barrier. By comparing the times taken for the film to disintegrate the comparative efficiency of creams can be assessed. This method was advocated in a "Memorandum on the Prevention of Industrial Dermatitis," with special reference to the use of barrier substances, Form 330, December, 1942, issued by the Factory Department of the Ministry of Labour and National Service. It is not very easy, however, in all cases to produce films which can be peeled off a sheet of glass, and in the experiments which have been carried out the film was allowed to remain on the glass while being treated with various reagents.

This method has been used for a number of commercial creams of different manufacture. In order to identify the creams they have been numbered as follows:

1. Barrier against fine dusts and for handling dry materials 2. Barrier against aqueous liquids 3. Barrier against oils and solvents 4. Barrier against both oils and water	Made by firm "A"
5. Barrier against non-aqueous material 6. Barrier against aqueous solutions	Made by firm "B"
7. Barrier against non-aqueous material 8. Barrier against aqueous solutions	Made by firm "C"

Under the test the films made from Nos. 3, 5, and 7 rapidly disintegrate, especially if the test liquid be either acid or alkaline. No. 1, although not claimed as water-resisting, is definitely better than either 6 or 7, while No. 4 is remarkably resistant to solutions of acid. No. 6, which is claimed to be water-repellent, breaks down quickly when subjected to the test. It is to be noted that when a film is not stable to the solvent it becomes opalescent in a short time; the onset of the opalescence is a fairly good indication that the film is absorbing the liquid and will soon disintegrate. Carried out under standard conditions of time and temperature, this test is very useful, but the results can easily be vitiated if care is not taken to make the films as nearly as possible all of the same thickness.

Another qualitative method is merely to shake up some of the cream with aqueous solutions. If the cream is truly water-repellent it will not disperse in the aqueous solution. If it is partially resistant to water it will not fully disperse, whereas if its resistance to water is poor it will wholly disperse. By this means differentiations can be made between the various creams, and it has been found that creams Nos. 5 and 7 do not stand up at all well under this treatment. On the other hand, No. 2 cannot be dispersed in the aqueous solutions, while both No. 1 and No. 4 show a resistance to dispersion which indicates that they possess resistance to water. This method can show quite considerable differences between acid and alkaline solutions. In general the acid solutions, as is perhaps to be expected, prevent dispersion of the creams, and all the creams, especially Nos. 2 and 6, have some resistance to acids. In respect to the alkaline solutions the only satisfactory cream is barrier cream No. 2. This method cannot be used for testing the resistance to non-aqueous solvents, since all the oil-resistant creams are obverse emulsions—i.e., water is the outside phase and they therefore cannot mix with oils.

Another method of investigating the resistance of the film to water followed the method described by Grant for measuring the degree of water-resistance of paper. The method consists in sprinkling the surface of paper with a small amount of icing sugar to which has been added 0.5% of "rhodamin 6G." The paper is floated on the surface of some distilled water and the surface examined under ultra-violet light. As soon as the dyestuff becomes wetted it shows a bright fluorescence, and the time taken for this to occur can be noted. The method does not, however, give a very sharply defined end-point, the fluorescence growing in intensity rather than appearing suddenly. At the same time the results are also subject to the variations in the thickness of the film; but if a rough allowance be made for this by repeating the observations several times, the creams can be differentiated one from another. In Table I figures are given for average results of a number of barrier creams, together with the time taken for the moisture to penetrate the untreated paper. In these experiments thin writing-paper or typing-paper was used for the membrane and not filter-paper.

TABLE I.—*Rate of Penetration of Water through Films of Barrier Cream, using the Fluorescence of a Dyestuff in the U.V. as a Measure of Penetration*

Cream Used	Time Taken for Fluorescence to Appear
Blank: paper only	14 seconds
Barrier cream No. 1	21 "
" " No. 2	121 "
" " No. 3	19 "
" " No. 4	75 "
" " No. 7	17 "
" " No. 8	25 "

It will be noticed that this method differentiates between No. 2 and No. 3 creams, which, when tested by directly measuring the volume of water penetrating a direct film of the cream (see Table IV), indicated that No. 3 had a high resistance to penetration. It should be borne in mind that the ultra-violet light will detect extremely small amounts of moisture on the upper surface of the film, the least trace causing solution of a minute quantity of the dyestuff, which is then strongly fluorescent. The test certainly seems to place the creams in the order which would be expected.

It is also possible to measure the resistance of the barrier film in a rough quantitative way by allowing a drop of a solution of dye to fall on to the surface of a piece of typing-paper which had previously been coated with the cream and allowed to dry. Ordinary red ink was used as the dye solution, and the drop was allowed to remain on the surface for exactly four

minutes, when it was dried off by means of a piece of filter-paper. Drops of the ink were placed on typing-paper and allowed to remain on for varying lengths of time, ranging from 1/2 to 4 minutes, when they were blotted off. The series of spots showing on the reverse side of the paper was used as the standard to compare against the colour obtained on the reverse side of the paper when barrier creams had been used. In this way it was possible to assess the resistance of the film of barrier cream. The results are given in Table II. In expressing the results the permeability of the untreated paper has been taken as 100, and the depth of shade produced when the barrier cream is present is expressed as a percentage of this. Thus a low figure indicates low permeability.

TABLE II.—*Percentage Permeability of Films of Barrier Cream as Determined by the Penetration of a Solution of Eosin*

Cream	Percentage Permeability
No. 1	85
No. 2	30
No. 3	80
No. 4	10
No. 5	70
No. 6	10
No. 7	70
No. 8	20

It is to be noted that when this test is carried out some creams cause the drop of ink to spread out a little, whilst in others the size of the drop does not alter in the four minutes taken for the test. Creams Nos. 5 and 7 cause the spot to spread considerably. This is due to the low contact angle between the ink and the film, and it is suggested that this may be a defect in the creams when it occurs.

Quantitative Tests: pH Value

There is abundant evidence that creams with a high degree of alkalinity can, of themselves, cause irritation of the skin of many people. The Medical Branch of the Factory Department of the Ministry of Labour is well aware of this. It must be realized, however, that to define the *p*H value of a cream is by no means simple, as obviously it will depend on the state of dryness of the cream when the determination is made. To attempt to determine the *p*H value of a pasty material is not easy, and accordingly it was decided to dilute the creams with an equal quantity of distilled water before making the determination.

In a comparatively rough way the *p*H value of creams can be determined by direct spotting with an indicator, but the results obtained must always be treated with some little reserve owing to the error of the indicator itself. All the creams, except Nos. 2 and 6, have been examined by diluting with an equal part by weight of distilled water and measuring the *p*H value of the mixture by means of a glass electrode. Table III gives the *p*H values for a number of creams as determined by this method.

TABLE III.—*pH Value of Barrier Creams diluted 50/50 (Glass Electrode)*

Cream	*p*H
No. 1	7·7
No. 3	8·0
No. 4	8·0
No. 5	9·3
No. 7	9·8
No. 8	9·1

NOTE.—It is impossible, of course, to determine the *p*H value of barrier cream No. 2, which is a reverse emulsion. The *p*H value of the dispersed water, however, is approximately 7·0. In the same way it was not possible to determine the *p*H value of barrier cream No. 6, as it does not mix with water.

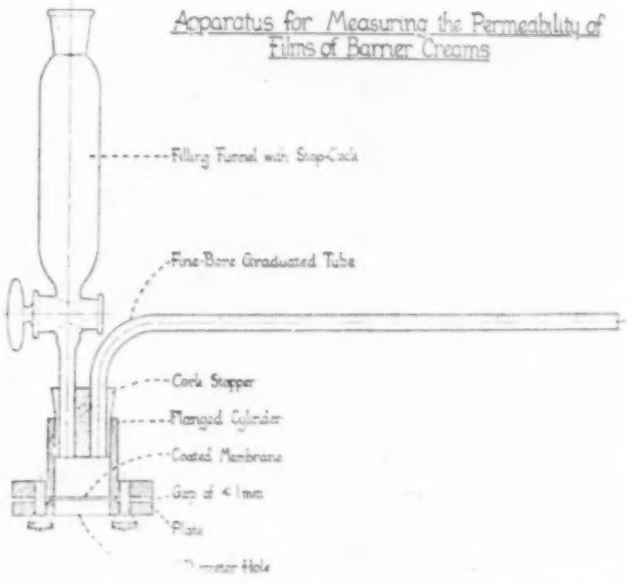
It is to be noticed that Nos. 5, 7, and 8 have very high *p*H values and must be condemned on this ground.

Permeability Tests

Although the above methods of examination give results which enable reasonable comparisons to be made, it was felt that something of a more practical character was desirable. For the first experiments it was considered that, ideally, thin horizontal "splits" of sheepskin—the form known commercially as flywing skiver—would form the best membrane on which to spread the creams, but owing to the close texture of the skin itself, and the fact that when it became wetted with water the skin fibres themselves swelled so that the membrane became less and less permeable to moisture, the time taken to carry out a test was so long that this material had to be abandoned. After experimenting with other materials, such as "cellophane," writing-paper, and typing-paper, the conclusion was reached that for laboratory work it was better to have a very permeable material, so that the resistance produced by the presence of a film of the barrier cream made a large alteration in the rate at which the liquid could penetrate the membrane itself. Filter-paper was found to be suitable, especially the type known as "Whatman No. 5," which, although a little rough on the surface, was sufficiently hard and rigid not to break down when wetted or during the application of the cream.

The method adopted originally consisted in applying a small quantity of the cream by means of the finger to the filter-paper, which had previously been weighed. It was found that one application did not usually produce a continuous film, and later two or three layers were rubbed on, the film being dried between each application. After drying, the disks of filter-paper were weighed, the difference between the dried weight of the filter and the dried weight of the filter plus cream being taken as a measurement of the thickness of the actual film, the area of course being constant. A further improvement of the method was to stain the filter-paper with red dye, "rhodamin," and then to dry before applying the barrier creams. By this means it was possible to see more clearly where the film was thinnest, so that in the second or third applications these parts could receive a little more of the cream than the other portions. This led to a substantial improvement, although perfection was not achieved.

The films were then placed in an apparatus which consists of a plate and a flanged cylinder of phosphor bronze, machined so that the surfaces fit perfectly together (see Diagram). In the centre of the plate there is a hole of 1 in. (2.5 cm.) diameter—i.e., equal to that of the bore of the flanged cylinder—and the two parts are fastened together by means of six thumbscrews, the coated membrane being thus securely held and forming the septum through which the experimental liquid is to pass. The cylinder is closed by means of a tight-fitting



cork through which two orifices are bored. The apparatus is filled by means of a small separating funnel which passes through one of the orifices, and water or other liquid is admitted until it runs out of the graduated tube, which passes through the second hole in the cork. As soon as the apparatus is full the cock of the separating funnel is turned off and the passage of water through the membrane is measured by observing the reading of the meniscus in the graduated tube at different time

intervals. The graduated tube is calibrated in hundredths of a millilitre. The membrane is placed in the apparatus with the film side uppermost. The machined surfaces are made so that when the membrane is secured the metal surfaces beyond the area of the coated membrane are at least 1 mm. apart; otherwise, when the film is breaking down, end-effects come into play through capillary action in between the two phosphor-bronze surfaces that tend to vitiate the results.

Experiments to investigate the effect of the thickness of the film did not lead to any really satisfactory results, although, in general, the rate of penetration became less the thicker the film. This lack of uniformity in the experimental figures has been attributed to the lack of evenness of the film. Various attempts have been made to overcome this difficulty, and apparatus has been made with sintered glass in place of filter-paper, the sintered glass being fused into a tube and ground off dead level with the end of the tube. This tube was placed inside a wider metal tube and the height adjusted so that the surface of the sintered glass was approximately one-fifth of a millimetre below the top surface of the outer metal tube. This space was then filled with cream and wiped level by means of a straight-edge. It was found that the films obtained by this means were quite regular; but, unfortunately, the cream did not always adhere to the sintered glass, and peeling could occur when the disk and film were treated with water. It was obvious that sintered glass was not an ideal surface, and experiments have now been carried out which suggest that satisfactory films can be spread on filter-paper, using a microtome, in which the filter-paper is dropped into the hole of the microtome to an adjusted depth, the space filled with cream and wiped off with a straight-edge using the top surface of the microtome as a guide. A piece of apparatus on these lines is being made so that filter-papers of suitable size can be coated.

It was found that in order to get figures with any meaning at least six tests had to be made with each sample of cream, rejecting those figures which were violently different from the general run of the other determinations. In calculating the permeability figures an attempt was made to compensate for the variations in the actual amount of cream on the filter. In the absence of accurate data for the relationship between the permeability and the actual thickness of the film, it was assumed that the volume of liquid transmitted was inversely proportional to the weight of the cream per unit area of the filter. It was realized that this relationship was not a straight-line function, but was probably a function to some power of the thickness. Nevertheless, by multiplying the volume of liquid transmitted by the weight of the cream the figures for different films came closer together and did permit some general comparison to be made between the different creams, especially when it is borne in mind that the calculated values contain a not inappreciable error.

The difficulties in obtaining a uniform film have led to the carrying out of a large number of experiments which, in the long run, had to be rejected, but by using tinted paper and applying the cream in three portions a series of figures has been obtained showing the differences between a number of barrier creams, the data being given in Tables IV and V. The method of expressing the results was to take the arithmetic mean of the volume of water or liquid as determined by the reading on the graduated tube for a number of membranes coated with the same cream. The readings were taken at intervals of fifteen minutes, and the amount which penetrated in successive periods of fifteen minutes was divided by fifteen to bring it to the rate per minute; this value was then multiplied by the average weight of the film per standard area. The weight figure was used as an indication of the volume of the film and, although the specific gravity of the creams may vary slightly, no notice was taken of this variation except in the case of barrier cream No. 2, which contains no fillers and which has a specific gravity considerably less than that of the others. The figures of No. 2 are therefore calculated back as though the dried cream has a specific gravity of 1.6, which is approximately the specific gravity of the other creams when dried to a film.

It will be seen from Table IV that of the creams which are designed to resist the penetration of water No. 4 is the most efficient. Next comes No. 2. Nos. 6 and 7 are not satisfactory.

It is interesting to note that No. 3 cream shows a very low water permeability, although it is designed to prevent oil penetrating. The reason for this anomalous behaviour is that it contains hydrophilic colloids which imbibe water without, of necessity, allowing *liquid* water to pass through. It will be appreciated that this type of cream will give very low figures when used in the apparatus, although it is quite unsuitable as

TABLE IV.—*Rate of Penetration of Water through Films of Barrier Creams*

Cream	Ml. × 10^{-5} of Water Transmitted per Minute per Unit of Cream during					
	First 15 min.	Second 15 min.	Third 15 min.	Fourth 15 min.	Fifth 15 min.	Sixth 15 min.
No. 1	310	141	78	104	97	95
No. 2	104	81	79	73	71	56
No. 3	174	96	70	52	40	33
No. 4	200	115	45	34	30	15
No. 5	340	90	59	44	34	31
No. 6	970	770	670	410	334	261
No. 7	310	205	190	190	166	181
No. 8	274	173	142	115	104	81

a protection for the skin against water. Films composed of hydrophilic colloids such as gelatin, etc., will allow water to diffuse but will not easily transmit water in bulk. It is also worthy of note that cream No. 5, which gives such a low permeability to water, is the one which is advocated as a protection against oils and non-aqueous materials, whereas cream No. 6, which is recommended as a water-repellent, appears to be the worst of the whole range. Cream No. 8 has only a medium resistance to water. It is probable that the poor results given by creams Nos. 5, 6, 7, and 8 are due to the large amount of soap which is their main constituent, and there is no doubt that the film produced when the cream dries can readily be re-emulsified by the addition of water. It would appear that in formulating creams Nos. 1, 2, 3, and 4 efforts have been made to produce an emulsion with the minimum amount of emulsifying agent so that the danger of the dried material being re-emulsified when coming into contact with water would be at a minimum.

In testing creams for their resistance to oil and solvents only white spirit has been used. Other solvents should, of course, be tried if the barrier action is to be assessed for any particular set of works conditions. Only those creams were tested which are claimed to be protectors against oils, and the experimental results are given in Table V.

TABLE V.—*Rate of Penetration of White Spirit through Films of Barrier Creams*

Cream	Ml. × 10^{-5} of Oil Transmitted per Minute per Unit of Cream during					
	First 15 min.	Second 15 min.	Third 15 min.	Fourth 15 min.	Fifth 15 min.	Sixth 15 min.
No. 3	194	105	68	62	57	60
No. 5	172	132	130	152	125	119
No. 7	178	120	120	101	89	72

With regard to the oil permeability, it will be seen that barrier cream No. 3 is superior to either of Nos. 5 and 7, and especially to No. 5.

Conclusions

The experimental work recorded above indicates that laboratory tests can be used in order to evaluate the quality of the different types of barrier cream which are on the market. In drawing this inference from the experimental work, however, we are aware that the *in vitro* testing cannot simulate, in all details, what actually happens when the barrier creams are applied to the skin and are subjected to the stresses imposed during manual work. At the same time, from the experience which has been gained by the use of some of these creams under actual working conditions, it can be stated that the laboratory tests have been well substantiated and those creams which failed under the laboratory conditions also failed when used in the factory.

It can be recommended, therefore, that medical officers, or those engaged in industrial welfare, can gain a very good indication of the value of the various preparations on the

market before they go to the extent of introducing them to the workers. It is to be borne in mind that it is not logical to say that because a particular preparation stood up to the laboratory tests it must, *ipso facto*, be an excellent cream as a barrier against dermatitis-producing substances.

Summary

Means of testing the efficiency of barrier creams have been described of both a qualitative and a quantitative character. It has been shown that there are a number of simple tests which can give rough evaluations of the value of these preparations.

Where a more quantitative assessment is desired the apparatus and methods described in the paper are put forward as means which enable the assessments to be made in a more precise manner.

It is to be stressed, however, that the final arbiter of quality must rest on the clinical testing of the creams.

AN AID TO THE MEASUREMENT OF VENOUS FILLING IN THE NECK IN CONGESTIVE HEART FAILURE

BY

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Clinicians a hundred years ago were aware that the jugular veins became engorged when the heart failed, but the phenomenon attracted no special attention. It was left to Lewis (1930), of our generation, to point out the practical value of this sign in diagnosis. It is due to his wise insistence that inspection of neck veins now takes its place alongside cardiac auscultation as a routine part of clinical examination.

Lewis indicated that a rough but adequate estimate of venous pressure (i.e., pressure within the right auricle) could be made by noting the vertical height of the blood column in the external jugular veins above the "zero level" represented by the "angle of Ludwig." The angle does not, of course, correspond anatomically to the vena cava opening which lies behind the right sternal border at the level of the third interspace, but it is convenient for measurement and in practice suitable. Examination of a number of normal subjects confirms Lewis's statement that venous filling extends to an average height of 2 cm. below the horizontal plane of the angle when the subject is supine, but with increasing inclination of the trunk the zero level approaches this plane. As patients with congestive failure will seldom be examined in the recumbent position the error is likely to be small and the vertical height of the blood column above the angle can be taken as a true measure of the increased venous pressure.

Absolute measurements of venous blood pressure can be made, but even the newest and neatest instrument, called by its designers (Winsor and Burch, 1943) a "phlebomanometer," suffers the inevitable disadvantage that a needle has to be introduced into a vein. Measurement of intra-auricular pressure by cardiac catheterization will hardly be claimed as a bedside manœuvre even by the greatest enthusiast. The state of the neck veins therefore remains the clinician's principal guide to venous pressure.

It is the usual practice to measure increased venous filling with one horizontal and one vertical ruler; accurate measurements by this means, however, demand an unusually skilled eye, and experience shows that two persons attempting the same measurement seldom agree; the record of day-to-day readings in the same patient therefore loses much of its value. On the other hand, if comparable measurements can be made there is much to be learned from serial records, in particular as an index of the response of congestive failure to treatment. For example, in a case where digitalization is achieved by the intravenous route a record of venous pressure over a period of an hour may be most illuminating.

A simple measuring instrument (Fig. 1) which eliminates the personal errors inherent in the ruler method has been designed. It consists of a vertical pillar graduated in centimetres and millimetres, with a pointed rubber-covered base: sliding on the pillar is a horizontal arm which by means of a rack-and-pinion can be raised or lowered on turning a wheel. The arm, which is accurately maintained at a right-angle to the pillar, bears upon its upper surface a small spirit-level.

To make a measurement (Fig. 2) one hand holds the instrument by the knob at the top of the column and the pointed base is placed upon the manubrio-sternal angle; the other hand, by rotating the wheel, raises or lowers the arm until its lower edge is aligned with the level of the top of the blood column in the vein, at the same time maintaining the bubble in the spirit-level at the central mark. The instrument is then lifted and the height of the arm read off the scale on the pillar; this necessarily represents the vertical height of the blood column above the sternal angle irrespective of the angle of inclination of the patient.

The actual measurement can be made single-handed in a few moments. There can, however, be no economizing on time spent in identifying the level of venous filling. Lewis himself advised that the neck should be examined in a "thoughtful manner." Experience confirms the soundness of this counsel A measurement made after a cursory inspection is likely to be entirely false. The pitfalls which may ensnare the careless are many, but once recognized they can be by-passed and measurements made with confidence.

Without wishing to stress the difficulties unduly, it may be helpful to indicate briefly the common sources of error. The level to which the veins are filled may be obvious, but in a fat patient or where the veins in their upper course run deeply

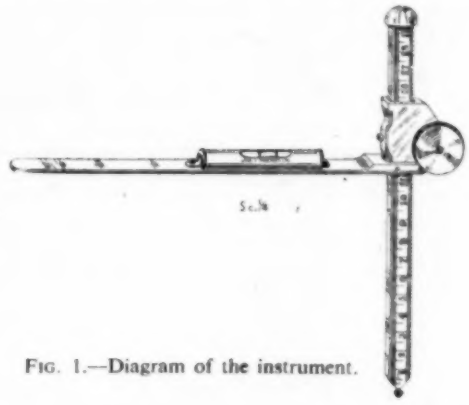

FIG. 1.—Diagram of the instrument.

FIG. 2.—The instrument in use.

this is not the case. On the other hand, in a thin subject the veins may be easily visible throughout their course and some difficulty be experienced. Lewis advised that the vein should be obstructed at the base of the neck by light finger-pressure and the level noted to which the blood column fell on release.

This may be helpful, but in my experience the best clue is the level of venous pulsation at the top of the blood column. On close scrutiny this can usually be ascertained. For example, in a case with congestive failure the blood column may appear to end at the posterior border of the sterno-mastoid muscle owing to pressure of the bulging muscle-belly, whereas the level of venous filling is in fact higher, as indicated by the presence of venous pulsation. Individual veins may be full because they are obstructed by muscle pressure at the root of the neck; contracting platysma, on the other hand, will obliterate the vein. Both difficulties are quickly resolved by altering the position of the head and by proper relaxation of the neck. Permanent venous obstruction is most commonly due to thyroid enlargement and, less commonly, to lymph nodes, mediastinal tumours, thrombosis of the vein, etc. Obstructed veins do not pulsate, and show no variation with change in the patient's position; unequal filling of various veins examined is a clear indication of obstruction. Deformities of the thoracic skeleton, such as severe kypho-scoliosis with increased depth of chest, will cause inaccurate measurement if the patient is semi-recumbent; in more erect positions the error becomes progressively less.

With these possible difficulties in mind it is advisable, on the first occasion at least, to make the examination and measurement according to a set routine. The patient should recline upon an adjustable back-rest, with one vertically placed pillow supporting the head and shoulders. Oblique illumination is helpful, as shadows upon full veins and areas of venous pulsation facilitate their recognition.

The external jugular veins, being largely superficial in their course, are the easiest to observe, but where they are visible other veins, such as the anterior jugular, may be used to confirm the level of venous filling. The minimal level (i.e., in inspiration) should first be identified with the patient lying midway between the vertical and the horizontal. A measurement is taken and confirmed by examination of the veins on the other side; if there is a discrepancy a mistake has been made. After this, by adjusting the back-rest, the head and shoulders should first be raised and then lowered below the original position and further measurements made; these should all closely agree, and the average figure can then be accepted as the measure of venous pressure.

The instrument can be obtained from Messrs. Chas. F. Thackray, Ltd., Park Street, Leeds.

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Medical Memoranda

Kidney Tumours in a Child and her Grandmother

The occurrence of an embryonal tumour of the kidney in a child 2½ years old and of a hypernephroma in her grandmother, aged 67, must be rare enough to be worth recording.

CASE REPORT

The Child.—Jean X., aged 2½, was seen in January, 1944, giving a history of slight haematuria two months previously. Examination showed a tumour occupying the whole left side of the abdomen and reaching across the midline anteriorly and to within two finger-breadths of the pubis. A diagnosis of Wilms's tumour was made and a pre-operative course of deep *x*-ray therapy was started. A maximum tumour dose of 3,150 *r* in 22 days was given to the left abdomen (B. J.). The mass regressed to one-third of its original size, and nephrectomy was performed (Mr. C. C. Holman) on Feb. 22. The tumour measured 12×11×8 cm. Macroscopically normal kidney structure was seen at the upper pole of the mass, which contained large cystic areas. The pathological report (Dr. H. I. Coombs) on the specimen was as follows: "The histology has been profoundly changed by the radiation, but numbers of small tubules and structures containing invaginations of stroma suggesting primitive glomeruli can be seen. These are separated by dense fibrotic stroma, but scattered foci of more primitive 'mesenchymal' tissue characteristic of a Wilms's tumour are also present."

The child made an uneventful recovery, and a post-operative course of deep *x* rays to the abdomen and mediastinum followed, 1,700 *r* being administered in 21 days. Apart from whooping-cough in November, 1944, she was well until February, 1945, when mediastinal metastases were shown on an *x*-ray film. These disappeared with further *x*-ray treatment. The child's condition improved temporarily. She died on July 21, 1945, eighteen months from the beginning of treatment.

The Grandmother.—Jane X., aged 67, is the paternal grandmother of Jean. She was first seen in January, 1946, suffering from profuse haematuria. She said she had had similar haematuria three years and five years previously. Examination showed a large mass in the right loin extending nearly to the midline anteriorly and to below the level of the umbilicus. Nephrectomy was performed by one of us (A. R. B.) on Feb. 8, 1946. Convalescence was uneventful, and she left hospital on Feb. 26. The pathological report (Dr. R. M. Heggie) was: "Histologically the tumour submitted presents the classical features of a hypernephroma showing the characteristic large cells and delicate vascular stroma. The arrangement of the epithelium is of the solid type." When last seen, early in July, there was no sign of recurrence and she was doing her housework.

COMMENT

Without inferring any significance in the occurrence of these relatively rare tumours in child and grandparent, one cannot help wondering whether Nicholson's assertion (see Stanford Cade's *Malignant Disease and its Treatment by Radium*, 1940, p. 910) that "Wilms's tumours . . . are malformed kidneys" does not find substantiation in these cases. It seems also worth mentioning that but for the follow-up clinics held at this hospital and the National Radium Commission registration cards this coincidence would not have been found, as the most persistent history-taking in the case of the elder patient did not provide any information of kidney disease in the family.

We are indebted to Mr. C. C. Holman for permission to mention the first case, and to Drs. H. I. Coombs and R. M. Heggie for the pathological reports.

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A Case of Refractory Anaemia

Cases of pernicious anaemia which are refractory to parenteral liver therapy are occasionally encountered and have been classified by Davidson *et al.* (1943). A year after the introduction by Davis *et al.* (1943) of proteolysed liver for the oral treatment of megalocytic anaemias Davis and Davidson (1944) reported on its effectiveness in the treatment of refractory anaemias, particularly those with megaloblastic erythropoiesis. The following case illustrates how a typical Addisonian pernicious anaemia was treated successfully with oral proteolysed liver when it had failed to respond to parenteral liver extracts.

CASE REPORT

A married woman aged 68 was first seen at the Nelson Hospital on April 24, 1945, having suffered from breathlessness, palpitation, and swelling of the ankles for five months. On examination she showed the usual manifestations of severe anaemia, and her blood picture was typical of pernicious anaemia: haemoglobin, 40%; red cells, 1,670,000 per c.mm.; colour index, 1.2; white cells, 5,400 per c.mm.; a blood film showed anisocytosis, megalocytosis, and poikilocytosis. She was referred back to her own doctor, who gave her intramuscular injections of "hepastab" 2 ml. three times a week for six months and then every ten days until she returned a year later. Her condition improved at first but was followed by a gradual deterioration. The only blood count during this period (on May 19) showed no response to the liver.

She was seen again on May 16, 1946, having felt progressively worse since the previous Christmas, and was admitted three days later. On examination she presented the characteristic clinical picture of pernicious anaemia, with brown pigmentation, jaundice, smooth tongue, enlarged liver, and palpable spleen, and with congestive heart failure superadded. A full blood count on May 20 showed: red cells, 950,000 per c.mm.; haemoglobin, 25%; colour index, 1.3; reticulocytes, 3%; a blood film showed marked anisocytosis and poikilocytosis, with a few normoblasts, macrocytes, and ghost cells.

Urine examination revealed no abnormal deposit or organisms. There was no free acid in the fasting gastric juice or after injection of histamine. Red cell fragility, normal. Van den Bergh reaction: direct, negative; indirect, 4 mg. per 100 ml. The specimen obtained on sternal puncture was not rich in cellular material, but the primitive red cells were of megaloblastic type. Hippuric acid test: 35% excreted after two hours (normal, 50%). The fat content of the dried faeces was normal. A barium meal followed by screening showed a normal stomach and duodenal cap. No occult blood was present in the stools, and the Wassermann reaction was negative.

To check the potency of her previous liver injections the patient was given "anahaemin" 2 ml. intramuscularly on May 20, but there was no reticulocyte response. On May 24 the treatment was changed to one tablespoonful of proteolysed liver by mouth and marmite daily. Her clinical condition improved satisfactorily, and she was discharged five weeks after the commencement of treatment. The evening temperature ranged between 100° and 102° F. (37.8° and 38.9° C.) during the first week after admission, 99° and 100° F. (37.2° and 37.8° C.) during the second week, and was normal after the third week. Her blood counts showed marked and rapid progress; after the first three weeks of treatment the haemoglobin

had increased by 31%, and the red cells by 2,300,000 per c.mm. There was no apparent reticulocyte response.

She was re-examined as an out-patient on July 3, when she felt very well. The jaundice had vanished, the filiform papillae had reappeared on her tongue, there were no signs of cardiac failure, and the liver and spleen were no longer palpable. The result of the latest blood count (July 22) was: haemoglobin, 80%; red cells, 3,200,000 per c.mm.

I wish to thank Dr. A. J. Beard for permission to publish this case, and Dr. J. M. Lever for the laboratory investigations.

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Chicken-pox Eruption Treated with Benzyl Benzoate

During the early part of this summer a fairly extensive outbreak of varicella occurred in this district. I had noticed during the latter part of my service in the R.A.M.C. that pruritic skin eruptions, of whatever nature, were very largely treated empirically with benzyl benzoate, and with considerable success, at any rate so far as the itching was concerned. Accordingly, remembering how unsuccessful the usual applications habitually proved, it was decided to use benzyl benzoate for the itching pustules in this epidemic, and 16 cases in all were treated with it. It is not too much to say that it acted like a charm, and by controlling the scratching may have done something to shorten the convalescence. While this is too small a series on which to base any firm conclusions, the results were striking enough to make it seem worth while recording them, in the hope that they will be confirmed by others who may give the treatment a trial.

The method was as follows: A complete application of the emulsion was made to all the affected areas, except the hairy part of the scalp, on successive days. For the scalp lot. crinalis was used and found to be satisfactory. After treating three or four cases patients were warned that they must not expect relief from the irritation until anything up to 24 hours after the second application, and, by the same token, that the apparent failure of the first application was no excuse for omitting the second. Relief occurred on the average in about 10 hours after the second application, and thereafter was complete. The first four cases were advised to continue the application to any fresh pustules or areas where there was still irritation; but it was quickly evident that two applications properly made were sufficient to complete the treatment. It is well recognized that many skins, particularly those of children and the fair-haired, are sensitive to benzyl benzoate. Luckily no complications occurred, and it is thought that experience may show that reaction to the drug is rare except where application has been constantly repeated. The following is a record of the most striking case in the series.

The patient was a male aged 46, who had the most extensive eruption I had ever seen, and was running a temperature up to 102.6° F. (39.2° C.). He was in great distress from the irritation, and very disappointed when he got no relief from the first application. However, he was persuaded to persevere, and the second application was given about 9.30 a.m. on the following day. By that evening he had complete relief, and was so delighted that nothing would stop him plastering himself with the emulsion from time to time, to prevent recurrence, as he thought. He had no further trouble and recovery was rapid.

A brief analysis of the cases is given in the following table.

Case	Sex	Age (years)	First Seen (days from onset)	No. of Applications	Relief of Irritation (hours from 2nd application)
1	F.	6	Day of onset	2+	About 12
2	M.	4	,,	2+	,, 24
3	M.	10	1	4	,, 10
4	M.	8	1	3+	,, 12
5	M.	46	1	4+	9
6	M.	7	Day of onset	2+	6
7	F.	15	2	2	12
8	M.	2	2	2	7
9	F.	4	1	2	6
10	F.	3	Day of onset	2	9
11	M.	13	3	2	10
12	F.	11	1	2	7
13	M.	7	2	2	8
14	F.	19	1	2	10
15	M.	3	Day of onset	2	6
16	M.	4	,,	2	8

Bedale, Yorks. J. H. BEILBY, M.B., B.Ch.

Reviews

PHYSIOLOGY OF FOOD AND NUTRITION

Food and Nutrition. By E. W. H. Cruickshank, M.D., D.Sc., Ph.D., M.R.C.P. (Pp. 326. 16s.) Edinburgh: E. and S. Livingstone Ltd. 1946.

This is a brief survey of the present state of our knowledge on the physiology of food and nutrition written for the general medical reader, although it is so clearly and simply written that the educated layman should have no difficulty whatever in following it. A number of historical anecdotes add to the interest of the book. A prominent feature is a discussion on the impact of the war on problems of national nutrition and a survey of the rationing system. There are chapters on the energy requirements of man, the basic foodstuffs, minerals, vitamins, the planning of diets, and the dehydration and preservation of foods. Each chapter is followed by a short list of references. The book is illustrated by a number of graphs and photographs, one or two of which are poorly reproduced. In the chapter on dental caries the impression is given that lack of vitamins A, D, and C is a contributory factor. There is no evidence that once the teeth are formed *human* dental caries results from a deficiency of these vitamins. However, this is only a minor criticism of an excellently planned, topical, and very readable book.

THE EMBRYONIC MIND

The Embryology of Behaviour. The Beginnings of the Human Mind. By Arnold Gesell, M.D., Ph.D., Sc.D., in collaboration with Catherine Amatruda, M.D. (Pp. 289; 391 illustrations. 21s.) London: Hamish Hamilton Ltd. 1946.

Dr. Arnold Gesell has extended his observations backwards, so to speak, and his latest book, written in collaboration with Dr. Catherine Amatruda, deals with *The Embryology of Behaviour*. It happened that the World's Fair hospital had a special unit for demonstrating the most modern methods for the care of prematurely born infants and here, during the summer of 1939 and 1940, a hundred babies were admitted (from various hospitals in New York City) with weights ranging from 800 to 2,100 grammes. Gesell's well-known methods of observation (and photographic recording) were adapted for these "foetal infants," as he calls them. His records, together with a study of what is known of the movements of foetuses and the work of such observers as Barcroft on particular problems, enable him to build up a fascinating picture of the development of behaviour, as orderly and documented in many respects as, for example, the story of the development of the heart. That there is a wide variation in the early stages, as in the later, is freely admitted, but a convincing pattern of what is termed in the book's subtitle "the beginnings of the human mind" really does emerge. Much that has been written of intrauterine psychology and even of early postnatal life is singularly unconvincing. This can never be said of Gesell's patient observations, and at a time when the whole field of embryology appears to be enjoying a renaissance it is fitting that this study of the embryonic mind should be included. Good appendices, selected bibliographies, and well-chosen illustrations make this an admirable monograph.

TREATMENT OF DIABETES

The Modern Treatment of Diabetes Mellitus, Including Practical Procedures and Precautionary Measures. By William S. Collens, M.D., and Louis C. Boas, M.D. (Pp. 514; illustrated. $8.50 post paid.) Illinois: Charles C. Thomas. 1946.

This is a large, comprehensive book on nearly every aspect of diabetes, written by two New York doctors, little known in England as specialists in that subject. It is quite a new, fresh, and interesting production. Its main difference from other American standard textbooks is the profusion of the illustrations and charts, which include many good coloured pictures of clinical conditions, such as gangrene, peculiar to diabetes. In the introductory historical section—an unusual feature—there are portraits of the main innovators from Willis to Banting.

A large appendix on the detailed technique of urine and blood chemical estimations is unusual in a book for general practitioners, and a very detailed section on insulin syringes and injections includes nearly 30 illustrations. Perhaps most interesting is the full description of the Busher automatic injector whereby the timorous can "shoot" themselves with an insulin gun—a neat but time-consuming gadget. It is practically unknown in England but would be useful for many children.

A large chapter of 70 pages is devoted to diseases of the peripheral arteries and all pathological processes, and mechanical devices such as the "paevex" apparatus are described and illustrated in great detail. There is, however, little critical appraisal of their relative virtues and uses, which is not surprising in view of the widespread scepticism brought about by their failure to improve diabetic arteriopathy. There is no justification for including on p. 283 the night cramps of a juvenile diabetic as a form of "claudication."

Though a large part of the book is filled with these elaborations there is room for all the routines of diets, tests, insulin dosage, etc., to be thoroughly dealt with. But very often these vital matters are left on a vague and theoretical basis where the practitioner is likely to be lost. If, for instance, he looks in the index for the initial dose of insulin to give his patient, he is only told that, if the case is moderately severe, he should give 1 unit for every 7 grammes of available glucose in the diet, perhaps 20–30 units a day; and if it is a severe case, 1 unit for every 2 grammes available glucose, perhaps 100 units a day. This is not very practically helpful, and what is the poor doctor to do faced with the infrequent diabetic? It is well recognized that no one can predict the necessary dose of insulin, that it is a matter of trial and error, and simple rules are necessary for the beginning of treatment. But, minor criticisms apart, this is a book which every diabetician must read, otherwise he will miss much.

RHEUMATIC DISEASES

Symposium on Rheumatic Diseases. Medical Clinics of North America New York Number. (Pp. 730; 115 illustrations. 75s.) London: W. B Saunders Company. 1946.

This is the May number of the well-known *Medical Clinics of North America* which are issued by subscription six times a year. The foreword is written by Prof. Russell L. Cecil of Cornell University who points out that World War II has lent special significance to this disease group, which formed a major problem within the field of internal medicine. The American Army established three special hospitals for rheumatic diseases where unusual opportunity was presented for their study, and several of the papers in this volume are from these centres, of which the chief was the Army and Navy Hospital, Hot Springs, Arkansas.

Hench and Rosenberg contribute a long paper on recent advances in the treatment of rheumatic fever with special reference to sulphonamide prophylaxis and intravenous therapy. From their studies they conclude that the former constitutes a notable advance in the control of rheumatic fever, while vaccine prophylaxis is of uncertain value and is not to be recommended. They evaluate the methods of controlling airborne streptococcal infection and reiterate the value of conservative views on the employment of rest in this disease.

The problem of dosage in the administration of gold salts for rheumatoid arthritis is exhaustively discussed by Prof. Cecil, who confirms the wisdom of the modern tendency to reduce dosage and to spread it over a longer period. *X*-ray therapy is discussed in some detail by Dr. Richard Freyberg, and the recognition and management of gout by Dr. John Lansbury of Temple University. The scope of physical therapy in chronic arthritis is admirably reviewed by Dr. Kovacs, and the contribution which the orthopaedic surgeon can make in this field is set out in succinct and interesting fashion by Prof. Irvin Balemsweig of Cornell. Among other matters dealt with are the cholesterol content of urine in arthritis, toxic hepatitis during gold-salt therapy, Still's disease, menopausal arthritis, and the susceptibility of the host in rheumatic fever.

The format of this volume is uniform with others in the series; they are easy to read, and provide an up-to-date summary of their subjects so far as the United States is concerned. A certain number of references to British work will, however, be found in the bibliographies which follow each chapter.

Notes on Books

Motor Disorders in Nervous Diseases, by Drs. ERNST HERZ and TRACY J. PUTNAM, is published in New York by the King's Crown Press. This small book is really an illustrated guide to the examination of the motor signs of disease of the central nervous system. The authors have carefully omitted everything else, as it is primarily meant for use with a series of cinematograph films of disorders of movement which they have made. Most of the 250 illustrations are stills from these films, and some of them are serial strips taken from them. Although they are technically excellent they are poor substitutes for direct observation of a patient, or even for the moving picture itself. Paralysis agitans loses everything in a photograph, the trigeminal nerve is a poor thing without its sensory roots, and an account of the examination of motor functions alone makes an unsatisfactory approach to neurology. As a descriptive syllabus to the set of films, for which it was intended, the book is no doubt admirable, but, except in so far as it presents aspects of neurology already available in comprehensive textbooks, it does little to supplement clinical teaching at the bedside. Copies can be had from the Oxford University Press, London, at 20s.

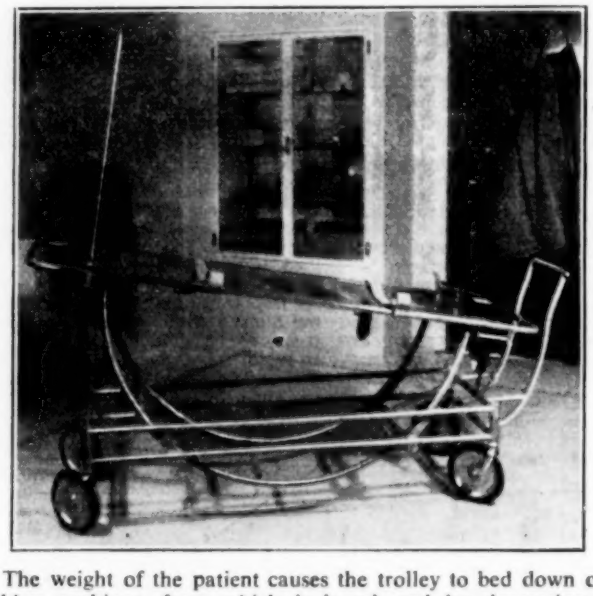
Road Accidents and Alcohol, being the Rae Memorial Lecture for 1946, by Dr. WILLIAM M. FAIRLIE, has been published with addenda as a 6d. pamphlet by the National Temperance League, 33, Bedford Place, W.C.1. The lecturer was divisional surgeon to the Metropolitan Police for 23 years, and the gist of his well-presented argument will be found in two sentences on p. 12: "The question arises, what amount of alcohol, if any, is it safe for the motor driver to take? There can be but one answer to this—NONE."

Preparations and Appliances

TIP-UP HOSPITAL TROLLEY

Dr. C. E. D. H. GOODHART writes from St. Helier County Hospital, Carshalton, Surrey:

There are many occasions when a theatre trolley which can be made to tip is of the greatest value. The trolley shown in the accompanying photograph was designed in conjunction with Mr. Selleck, our engineer, to whom our grateful thanks are due. It was made in the hospital's workshops of 1 in. conduit and tinned sheet steel. It embodies the following features.



The weight of the patient causes the trolley to bed down on rubber cushions, from which it is released by depressing a foot pedal, when tilts of up to 30° in either direction can be obtained. To prevent the patient sliding off, two leather straps and adjustable shoulder-pieces are provided. The latter when not in use are locked away under the trolley. Finally, a movable rod with a hook has been added, from which a bottle containing blood, etc., can be suspended.

I wish to thank Dr. Miller, our pathologist, for his kindness in taking the photograph.

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HEALTH SERVICE IN RHODESIA

Southern Rhodesia is the latest British colony to contemplate a National Health Service. It is not much more than fifty years since the first British doctors entered the Mashonaland plateau, accompanying the pioneer column of the British South Africa Company, and established the first hospital at Salisbury. Now the colony is seeking a service based somewhat on the model foreshadowed by British legislation, with Minister of Health, National Health Board, Regional Health Councils, Area Health Committees, and the rest of them. In the young and expanding country south of the Zambesi health services have "just grow'd." The State, there as elsewhere, has come into the picture to fill the gaps when these obtruded themselves. Much excellent work has been done for the Africans by Christian missions. For the Europeans, and indeed for the Africans too, other voluntary work has had a different derivation—namely, the State lotteries, which have subsidized bilharzia research, built a hospital for nervous diseases at Bulawayo, established an orthopaedic service, and organized blood transfusion. The State has furnished free curative services for the obviously needy, especially, of course, the African population, and for Europeans it has maintained Government medical officers in areas which could not support a private practitioner. The State runs nearly all the hospitals in Southern Rhodesia, and, with very minor exceptions, all the maternity homes.

The difficulty is the inadequacy of medical service for the African population. For every European there are about 20 Africans, and, while the curative services for the Europeans may be adequate, those for the Africans are fantastically deficient. Even in twenty years' time, when, under the long-term proposals now being put forward, there will be a European full-time Government medical officer in every native district, assisted by one or more fully qualified African doctors, there will still be only one medical man to perhaps 20,000 Africans. In some districts at present there is one doctor to 50,000 or 100,000 potential patients —an impossible situation even if the population were mainly healthy. Domiciliary treatment for Africans is practically non-existent, and even out-patient treatment at hospitals is largely provided by orderlies who sort out the cases for the visiting doctor. Thousands of sick Africans never see a doctor at all.

A Government Commission, under the chairmanship of Prof. C. F. M. Saint, has been inquiring into the provision of an organized National Health Service in conformity with the modern conception of "health," and has submitted its report (a summary of which appeared in our *Supplement* of Oct. 26) to the Legislative Assembly of Southern Rhodesia. The first principle it lays down is that the State must accept responsibility for the health of the African. This being accepted, it seems difficult to exclude the remaining 5% of the population. Whatever the financial arrangements of the service, the cost must be borne mainly by the better-to-do, and to leave these persons out of benefit would mean that they paid twice, once in the form of taxation, and again for such service as they might personally need. Again, if these people were left out of the scheme it would be immediately branded as an inferior service. For the African population there can be no economic alternative to a full State salaried service. For the European population the position is different, largely because they have been imbued with the principle of free choice of doctor (though in fact outside the big towns that is largely illusory) and the importance of the doctor-patient relationship. The Commission therefore proposes that curative services be divided into two parts. Surgical and medical treatment in hospitals, and consultant, maternity, *x*-ray, and laboratory services, will be provided free to everyone by means of a full-time salaried staff, but general practitioner and dentistry services for non-Africans will be left to private practice. They will be paid for by the individual himself up to a certain prescribed maximum each year. The scheme is that a man will pay for his medical services up to 2% on the first £500 of his income, at a slightly higher rate on the second £500, and so on, so that a person with just under £1,000 a year will have to pay £20 for medical services for himself and his family before his personal responsibility ceases and the cost of any further service is met from State funds. The individual will be relieved of excessive costs falling in any one year, and the general practitioner, paid on a fee-for-service basis, will derive part of his income from the patient and part from the State. This plan will make it necessary for the Government to ordain uniform charges for medical services, and there is an implication that if these charges are pitched too high the arguments in favour of a whole-time salaried general practitioner service will be strengthened. Meanwhile to obtain the increased number of Government medical officers who will be necessary the Commission recommends a higher salary scale, which it is thought will attract as many as the colony can afford.

It will be interesting to learn what is the reaction of the Rhodesian general practitioner to these proposals. On the one hand, he will have fewer bad debts and less expense and delay in debt collection, and he may expect some increase of practice, because people will not be deterred to the same extent from coming to the doctor by the possibility of incurring heavy costs. He will also, if another recommendation goes through, have access in certain places to central consulting rooms and equipment. On the other hand, he stands to lose his midwifery practice and the practice he may have been accustomed to carry out at the local hospital. Apparently the question of the general practitioner's following his cases into hospital is a sore one. General practitioners, it is said, have invaded Government hospitals with their private cases, which have been nursed under their orders by Government nurses and

physicked on their prescriptions from Government stocks, and the patient has paid the normal fee to the private doctor and has made only a sub-economic payment to the Government. All that is going to be stopped if the report of the Commission is adopted. The same applies to maternity homes, where cases will be attended by salaried obstetricians. Two members of the Commission of five stood out for the opening of maternity homes to general practitioners, but the majority went the other way. If a patient wants the services of a private practitioner in hospital or maternity home the full economic rates will have to be paid.

Like many good things—and bad things, too—in the British Empire and outside it, the proposals are a compromise. They will please neither the advocates of a full State service nor those who favour unrestricted private practice. They extend the scope of the State, but leave a wide area to non-State agencies. They reduce the burden of medical expenditure falling upon the individual, but they leave him to bear an appreciable part of it. In the field of administration they provide for public participation in health affairs, but executive control in most respects would be left in the hands of the Government. They create regional authorities, but allow the municipalities to continue most of their existing functions. Their finance is planned on generous lines and yet with due recognition of the limited resources of the colony. One line of compromise which does not appear to be mentioned in the report, though it has many examples in the British system, is the part-time employment of private practitioners by local authorities. But the differences in conditions of medical practice between Great Britain and Southern Rhodesia must be borne in mind. To mention one difference only, the system whereby our voluntary hospitals are staffed by physicians and surgeons who give their services without payment, and in return gain experience and prestige which enables them to command a wide practice and high fees, is quite out of the question in the Rhodesian scene.

RUBELLA AND CONGENITAL ABNORMALITIES

The considerable number of reports showing an association between rubella during pregnancy and the subsequent birth of a child with a congenital abnormality leave little room for doubt that such an association exists.[1] The practical and theoretical implications have been fully discussed by Ida Mann, N. McA. Gregg, Swan, and Scholes at a symposium held by the Ophthalmological Society of Australia.[2] Two questions still remain, however: how frequently does the association exist, and in what proportion of all children thus defective is rubella the cause? Conte, McCammon, and Christie[3] have endeavoured to answer such questions by reviewing their hospital records for all cases diagnosed as congenital heart disease, congenital cataracts, deaf mutism, microphthalmia, aniridia, hydrocephalus, and mongolism during the period 1939–44. The survey disclosed a total of 120 such cases, and the mothers of these were approached by means of a written questionary. Sixty-one parents replied—not, perhaps, a very satisfactory proportion—and of these five gave a history of rubella during the pregnancy. In the first (one of twins) the mother had contracted rubella in the seventh month, but in the others the times of occurrence were 2 weeks, 6 weeks, 2 months, and 3 months. There were four examples of congenital cataract, four of congenital heart disease, three of cerebral aplasia, and one of mongolism; all had more than one abnormality. To show that the association was more than casual the "rubella case rate" of 4.2% (assuming that the mothers who did not reply did not have rubella) was compared with a rate of 0.4%—the author's estimate from local morbidity statistics of the "rate of measles in the female population of the child-bearing age group." The large disparity between the two figures is additive evidence in support of an association. (The first rate is based upon "actual" mothers, whereas the second is based on "potential" mothers, so one might conjecture an even greater disparity.) Fox and Bortin[4] have tackled the same question in a different fashion. During 1942–4, out of a total of 22,226 cases notified as rubella there were 581 where the patient was a married woman. Of 152 of these women who had been followed up 11 were found to have had the disease during a pregnancy—in five before the second month, in four before the fourth month, and one each in the seventh and ninth month. Only one of the mothers, who had rubella during the first month, later gave birth prematurely to a hydrocephalic stillbirth; otherwise all the other children were normal. One interesting case brought to light in the investigation was of a mother who, eight years previously, gave birth to a child with bilateral congenital cataract after a normal pregnancy. On the present occasion when rubella occurred the child was normal.

Such figures permit broad answers to the two questions posed: first, that rubella during the early months of pregnancy has something less than a 10% chance of damaging the foetus; and secondly, that of all such congenital abnormalities in children some 5–10% may have their origin in damage by virus during intrauterine life. One would naturally expect that these results might be capable of extension to other viral infectious diseases; but in a survey of 92 cases of antepartum infection traced by Conte and his colleagues[5] only three were examples of virus disease (rubella, chicken-pox, and mumps), and in none was there any congenital abnormality in the child. As it happened, two out of the three occurred late in pregnancy. Swan[5] reported one case presumed due to mumps and another to influenza, and Rones[6] has recorded one where the maternal disease was morbilli.

Such work should result in a complete re-examination of the aetiology of congenital defects. The range of the inquiry may well be wide, for about two-thirds of the cases thus far recorded have also been mentally defective. Earlier investigations all seemed to point to the conclusion that extrinsic factors played little part in initiating congenital

1 *British Medical Journal*, 1945, **1**, 635.
2 *Trans. Ophthal. Soc. Austral.*, 1944, **4**, 115–145.
3 *Amer. J. Dis. Child.*, 1945, **70**, 301.
4 *J. Amer. med. Ass.*, 1946, **130**, 568.
5 *Med. J. Austral.*, 1943, **2**, 201.
6 *Med. Ann. Dist. Columb.*, 1944, **13**, 285.

defects, and that the condition of the germ-plasm at the time of fertilization was the over-riding consideration.[7] Indeed, in view of the very natural desire on the parent's part to want to blame some environmental factor rather than admit some apparently inherited imperfection, it seems strange that the effect of a maternal infection escaped notice as a traditional cause. Guerry,[8] it is true, commenting on a further two cases with congenital glaucoma, alleges that there is "an old-wives' tale well known among the laity to the effect that if a mother has German measles while pregnant it will settle in the baby's eyes." But such a superstition seems to have been so deeply buried that it has become quite forgotten. It is, however, abundantly clear that rubella itself does not provide the entire explanation. One is tempted to conjecture that many other extrinsic factors should be included in the range of inquiry and that the recent suggestion that Rh incompatibility may be a cause of mental deficiency[9] further extends the list of possible exciting environmental factors.

PLEBISCITE SECRET

Everyone who returns the Plebiscite form will sign his or her name on it. A correspondent asks whether these signatures will be confidential, and whether there would be any risk that the Minister or Ministry of Health would have access to the names of those who write "No" on the form. "I feel," he writes, "the need for an assurance that the voting will be either in fact secret or if not that any papers, records of names, votes, etc., will be absolutely destroyed immediately after the count, and revealed by no one to no one." It is possible that other doctors may also have some lurking fear of the consequences that may follow their decision to write either "Yes" or "No" on the Plebiscite form. We would therefore assure any who remain in doubt that the voters' names will be kept secret and will not be revealed to any Government Department. When the issue has been settled the Plebiscite forms will be destroyed. It is necessary that the Plebiscite form should be signed, as in university voting, as a safeguard against the risk of duplicate returns.

That the question has been asked in all seriousness is an illustration of the distrust of the Ministry of Health that prevails in the profession and of the fears that medical men have of a service controlled by the Ministry. This distrust is deep-rooted and the result of the profession's experience with the Ministry of Health since 1919. The present Minister cannot be said to have gone out of his way to remove the grounds of this distrust. His attitude of mind was revealed in the cheap jibe about senior members of the profession which he made when recently addressing the British Medical Students Association. If he is to secure that co-operation from the profession which he knows is essential he will have to show himself more appreciative of the wishes and fears of the medical profession than he has been so far. If the majority of the profession say "No" on their Plebiscite forms then the Minister will have no one else but himself to thank for such a refusal to operate the new Health Service Act, because this is what the answer "No" will mean. If the majority say "Yes" the Minister may be assured that very many of those saying "Yes" will be saying it with some reluctance. This "Yes" may become converted into a "No" to the question, "Do you want to enter the Service?" which may be put to the profession shortly before the appointed day and when the full details of the Service as expressed in Regulations and Orders are known. Once again we urge all doctors to vote and to return their Plebiscite forms.

[7] Murphy, D. P., *Congenital Malformations*, Univ. of Penn. Press, 1940, Philadelphia.
[8] *Amer. J. Ophthal.*, 1946, **29**, 190.
[9] *British Medical Journal*, 1945, **2**, 188.

GALVANISM FOR DENERVATED VOLUNTARY MUSCLES

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Since animal experiments proved to be so promising a clinical assessment of the effects of galvanism on denervated muscle was made by Jackson[2 3] working at Oxford. Volumetric measurements of the hand were made, with industrial alcohol, on patients suffering from peripheral nerve lesions. These cases were divided into groups according to the type of lesion and the time which had elapsed between the receipt of the injury and the initiation of treatment. Ninety stimuli, at the rate of thirty per minute, were given with each treatment for six days a week in the treated cases. These were compared with a similar series which received no galvanism. The observations were limited to the period of complete paralysis.

It appears from these investigations that in the first four hundred days a steady loss in volume occurs in untreated muscles, whereas in those receiving galvanic treatment wasting is almost completely prevented except during the first hundred-day period. Moreover there is some evidence to show that even during those hundred days galvanism tends to minimize wasting. It can therefore be concluded that the course of wasting as it occurs in human muscle resembles that found in experimental animals, and that the sooner treatment is started after the receipt of the lesion the better. Electromyographic observations have shown that the delay between the appearance of motor units in a muscle and the first flicker of voluntary contraction was less in those cases in which galvanic stimulation had been carried out.

Stimulation should be started as soon as possible after denervation even if this involves cutting windows in plaster casts to gain access to areas where it can be applied. Galvanic stimuli should be administered ninety times daily at the rate of thirty per minute, with an interval of one minute between each group of thirty stimuli to permit recovery from any possible muscle fatigue; and this treatment should be applied at least six days a week. For smaller muscles such as those of the hand the value of such measures is not in doubt; where large muscle masses such

[1] *Lancet*, 1942, **1**, 169.
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physicked on their prescriptions from Government stocks, and the patient has paid the normal fee to the private doctor and has made only a sub-economic payment to the Government. All that is going to be stopped if the report of the Commission is adopted. The same applies to maternity homes, where cases will be attended by salaried obstetricians. Two members of the Commission of five stood out for the opening of maternity homes to general practitioners, but the majority went the other way. If a patient wants the services of a private practitioner in hospital or maternity home the full economic rates will have to be paid.

Like many good things—and bad things, too—in the British Empire and outside it, the proposals are a compromise. They will please neither the advocates of a full State service nor those who favour unrestricted private practice. They extend the scope of the State, but leave a wide area to non-State agencies. They reduce the burden of medical expenditure falling upon the individual, but they leave him to bear an appreciable part of it. In the field of administration they provide for public participation in health affairs, but executive control in most respects would be left in the hands of the Government. They create regional authorities, but allow the municipalities to continue most of their existing functions. Their finance is planned on generous lines and yet with due recognition of the limited resources of the colony. One line of compromise which does not appear to be mentioned in the report, though it has many examples in the British system, is the part-time employment of private practitioners by local authorities. But the differences in conditions of medical practice between Great Britain and Southern Rhodesia must be borne in mind. To mention one difference only, the system whereby our voluntary hospitals are staffed by physicians and surgeons who give their services without payment, and in return gain experience and prestige which enables them to command a wide practice and high fees, is quite out of the question in the Rhodesian scene.

RUBELLA AND CONGENITAL ABNORMALITIES

The considerable number of reports showing an association between rubella during pregnancy and the subsequent birth of a child with a congenital abnormality leave little room for doubt that such an association exists.[1] The practical and theoretical implications have been fully discussed by Ida Mann, N. McA. Gregg, Swan, and Scholes at a symposium held by the Ophthalmological Society of Australia.[2] Two questions still remain, however: how frequently does the association exist, and in what proportion of all children thus defective is rubella the cause? Conte, McCammon, and Christie[3] have endeavoured to answer such questions by reviewing their hospital records for all cases diagnosed as congenital heart disease, congenital cataracts, deaf mutism, microphthalmia, aniridia, hydrocephalus, and mongolism during the period 1939–44. The survey disclosed a total of 120 such cases, and the mothers of these were approached by means of a written questionary. Sixty-one parents replied—not, perhaps, a very satisfactory proportion—and of these five gave a history of rubella during the pregnancy. In the first (one of twins) the mother had contracted rubella in the seventh month, but in the others the times of occurrence were 2 weeks, 6 weeks, 2 months, and 3 months. There were four examples of congenital cataract, four of congenital heart disease, three of cerebral aplasia, and one of mongolism; all had more than one abnormality. To show that the association was more than casual the "rubella case rate" of 4.2% (assuming that the mothers who did not reply did not have rubella) was compared with a rate of 0.4%—the author's estimate from local morbidity statistics of the "rate of measles in the female population of the child-bearing age group." The large disparity between the two figures is additive evidence in support of an association. (The first rate is based upon "actual" mothers, whereas the second is based on "potential" mothers, so one might conjecture an even greater disparity.) Fox and Bortin[4] have tackled the same question in a different fashion. During 1942–4, out of a total of 22,226 cases notified as rubella there were 581 where the patient was a married woman. Of 152 of these women who had been followed up 11 were found to have had the disease during a pregnancy—in five before the second month, in four before the fourth month, and one each in the seventh and ninth month. Only one of the mothers, who had rubella during the first month, later gave birth prematurely to a hydrocephalic stillbirth; otherwise all the other children were normal. One interesting case brought to light in the investigation was of a mother who, eight years previously, gave birth to a child with bilateral congenital cataract after a normal pregnancy. On the present occasion when rubella occurred the child was normal.

Such figures permit broad answers to the two questions posed: first, that rubella during the early months of pregnancy has something less than a 10% chance of damaging the foetus; and secondly, that of all such congenital abnormalities in children some 5–10% may have their origin in damage by virus during intrauterine life. One would naturally expect that these results might be capable of extension to other viral infectious diseases; but in a survey of 92 cases of antepartum infection traced by Conte and his colleagues[5] only three were examples of virus disease (rubella, chicken-pox, and mumps), and in none was there any congenital abnormality in the child. As it happened, two out of the three occurred late in pregnancy. Swan[5] reported one case presumed due to mumps and another to influenza, and Rones[6] has recorded one where the maternal disease was morbilli.

Such work should result in a complete re-examination of the aetiology of congenital defects. The range of the inquiry may well be wide, for about two-thirds of the cases thus far recorded have also been mentally defective. Earlier investigations all seemed to point to the conclusion that extrinsic factors played little part in initiating congenital

1 *British Medical Journal*, 1945, **1**, 635.
2 *Trans. Ophthal. Soc. Austral.*, 1944, **4**, 115–145.
3 *Amer. J. Dis. Child.*, 1945, **70**, 301.
4 *J. Amer. med. Ass.*, 1946, **130**, 568.
5 *Med. J. Austral.*, 1943, **2**, 201.
6 *Med. Ann. Dist. Columb.*, 1944, **13**, 285.

defects, and that the condition of the germ-plasm at the time of fertilization was the over-riding consideration.[7] Indeed, in view of the very natural desire on the parent's part to want to blame some environmental factor rather than admit some apparently inherited imperfection, it seems strange that the effect of a maternal infection escaped notice as a traditional cause. Guerry,[8] it is true, commenting on a further two cases with congenital glaucoma, alleges that there is "an old-wives' tale well known among the laity to the effect that if a mother has German measles while pregnant it will settle in the baby's eyes." But such a superstition seems to have been so deeply buried that it has become quite forgotten. It is, however, abundantly clear that rubella itself does not provide the entire explanation. One is tempted to conjecture that many other extrinsic factors should be included in the range of inquiry and that the recent suggestion that Rh incompatibility may be a cause of mental deficiency[9] further extends the list of possible exciting environmental factors.

PLEBISCITE SECRET

Everyone who returns the Plebiscite form will sign his or her name on it. A correspondent asks whether these signatures will be confidential, and whether there would be any risk that the Minister or Ministry of Health would have access to the names of those who write "No" on the form. "I feel," he writes, "the need for an assurance that the voting will be either in fact secret or if not that any papers, records of names, votes, etc., will be absolutely destroyed immediately after the count, and revealed by no one to no one." It is possible that other doctors may also have some lurking fear of the consequences that may follow their decision to write either "Yes" or "No" on the Plebiscite form. We would therefore assure any who remain in doubt that the voters' names will be kept secret and will not be revealed to any Government Department. When the issue has been settled the Plebiscite forms will be destroyed. It is necessary that the Plebiscite form should be signed, as in university voting, as a safeguard against the risk of duplicate returns.

That the question has been asked in all seriousness is an illustration of the distrust of the Ministry of Health that prevails in the profession and of the fears that medical men have of a service controlled by the Ministry. This distrust is deep-rooted and the result of the profession's experience with the Ministry of Health since 1919. The present Minister cannot be said to have gone out of his way to remove the grounds of this distrust. His attitude of mind was revealed in the cheap jibe about senior members of the profession which he made when recently addressing the British Medical Students Association. If he is to secure that co-operation from the profession which he knows is essential he will have to show himself more appreciative of the wishes and fears of the medical profession than he has been so far. If the majority of the profession say "No" on their Plebiscite forms then the Minister will have no one else but himself to thank for such a refusal to operate the new Health Service Act, because this is what the answer "No" will mean. If the majority say "Yes" the Minister may be assured that very many of those saying "Yes" will be saying it with some reluctance. This "Yes" may become converted into a "No" to the question, "Do you want to enter the Service?" which may be put to the profession shortly before the appointed day and when the full details of the Service as expressed in Regulations and Orders are known. Once again we urge all doctors to vote and to return their Plebiscite forms.

[7] Murphy, D. P., *Congenital Malformations*, Univ. of Penn. Press, 1940, Philadelphia.
[8] *Amer. J. Ophthal.*, 1946, **29**, 190.
[9] *British Medical Journal*, 1945, **2**, 188.

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as those of the thigh are involved tolerable doses of galvanism may affect only the more superficial fibres, and this form of therapy will not be so effective.

CANCER CONTROL IN THE U.S.A.

The plan for an accelerated cancer-control programme is provided in a report on cancer facilities and services issued by the U.S. Public Health Service of the Federal Security Agency. Prepared by a committee of the National Advisory Cancer Council, the report contains specific recommendations concerning medical education and control programmes for the disease which to-day ranks second as a cause of death in the U.S. The special committee was appointed in November, 1944, by Dr. Thomas Parran, Surgeon-General of the U.S. Public Health Service, in anticipation of a post-war increase in cancer control activities. The report deals in turn with medical education in cancer, basic elements of a cancer programme, and basic information for use in studying and planning State-cancer-control activities.

The committee recommends more comprehensive and better integrated courses in cancer at medical schools; an increase in the number of centres prepared to give post-graduate training in cancer; and the continuation and expansion of the various kinds of cancer-education activities for practising physicians that have been conducted in a number of communities. It further recommends that the National Cancer Institute should aid in the development of a few cancer centres strategically located geographically, in association with one or more medical centres, and available to any patient regardless of ability to pay. It suggests that such centres would serve as guides in developing plans that could be applied anywhere in the country to give cancer patients the best that medical science has to offer in the way of diagnosis and treatment. Expansion of the research work of the National Cancer Institute is advised, including the training of research fellows and grants to aid research in other institutions. Also recommended is assistance from the Institute to State health departments and other agencies in developing programmes which will provide a State with an adequate cancer service. The report describes the basic elements of such a service as statistical research to determine the extent of the cancer problem; educational activities for doctors, dentists, nurses, and the general public; medical facilities and services, including cancer prevention or detection clinics, tissue diagnostic services, diagnostic and treatment clinics (one for approximately 50,000 population), an adequate number of hospital beds, and facilities for the care of the advanced cancer patient either in his own home or in an appropriate institution. Close co-operation is urged between the National Cancer Institute and voluntary agencies in the development of cancer-control activities. It is further recommended that if present legislation does not give the National Cancer Institute the authority to carry out the committee's recommendations additional legislation and necessary appropriations should be sought.

PERICORONARY NEURECTOMY FOR CORONARY DISEASE

In his Harveian Oration, published elsewhere in this *Journal*, Sir Maurice Cassidy draws attention to the increasing prevalence of coronary disease. In America there has been a similar increase, and the surgery of coronary disease with angina has been the subject of much experimental work.

Sensory disturbances, vasomotor reactions, and mechanical interference with the coronary blood flow all play a part in coronary disease. Surgical operations have not so far been designed to attack all these abnormal conditions and for this reason have often proved disappointing. Fauteux[1] has recently pointed out that arteriosclerotic disease of the coronary arteries is similar to that of the extremities and has therefore suggested that surgical methods used in the treatment of peripheral vascular disease could be applied to coronary disease.

In cases of senile gangrene ligation of the popliteal vein has proved of value, and in 1937 Gross, Blum, and Silverman[2] reported experiments showing that occlusion of the dog's coronary sinus increased the blood supply and reduced the incidence of infarction following ligation of a coronary artery.

Since 1939 Fauteux has ligated the great coronary vein in 9 cases of angina pectoris, all with a history of coronary thrombosis. One death followed operation, and one other patient has since died. Of the 7 survivors 3 are alive after five years, and 4 are alive four years after operation. All these patients are at work and enjoying life. Fauteux considers that the coronary venous ligation affects the natural development of a collateral circulation and improves both the nutrition of the heart and its functional capacity. The coronary nervous system is not modified by the ligation, and he feels that a logical extension of the operation should include an interruption of the nerves to and from the coronary vessels. This could be done by what Fauteux calls "pericoronary neurectomy," destroying the nerve branches reaching or leaving the left and right coronary arteries, since these branches are localized behind the pulmonary artery as well as in the nerve plexus over the ascending aorta. Experimental work on dogs seems to show favourable results, and the operation has been performed on one man. This patient, aged 45, had had a coronary thrombosis following attacks of angina. He made a good recovery after operation and up to six months later had been relieved of all anginal pains and had resumed work.

This paper is no more than a preliminary account of pericoronary neurectomy and the work on which it is based. It is clearly not possible to draw any conclusions from it, but the report of further experiences and of a longer follow-up will be awaited with interest.

BARRIER CREAMS

Dermatitis is a national problem, and for some time it has been one of the principal causes of disablement from industrial disease. Any scientific attempt to initiate new, or to improve old, methods for its prevention must receive careful consideration.

Barrier creams have been hailed as the answer to the problem of industrial dermatitis, and they are of value provided that they are well chosen and as well used. But an article in this issue on "The Evaluation of Barrier Creams" (p. 769) may serve to temper enthusiasm with a caution as to the need for ascertaining whether such creams can physically or chemically fulfil the claims that are made for them.

The application of special preparations intended to act as a barrier between the irritants of industry and the worker's skin originated as the result of personal observations by the workmen who long ago used such substances as mutton fat, Fuller's earth, china clay, or soap. It seems unlikely that the primary objective was the prevention of skin affections. More probably the practice arose and grew on account of the relative ease with which the signs of toil, and perhaps staining of the skin, were removed after

[1] *Amer. Heart J.*, 1946, **31**, 260.
[2] *J. exp. Med.*, 1937, **65**, 91.

work was over. This is still one of the main qualities of barrier preparations, and in view of the number of creams which failed to gain a credit or even a pass on the evaluation standards of Sadler and Marriott it is salutary to remember this and to recall that provided it is non-irritating to the skin even an imperfect barrier which is used will be of more value than untouched perfection in the pot.

Recently, in the Patent Fuel Manufacture (Health and Welfare) Special Regulations of 1946, "barriers" were given statutory status by the requirement of the provision of "a suitable cream or similar protective substance for the skin." Every works medical officer knows that it is one thing to provide a cream and quite another to ensure its use, and where the provision is voluntary there is nothing for it but persuasion. This will be undertaken with more conviction if it has been shown that the protective cream provided has the requisite chemical and physical qualities for the task. As Sadler and Marriott point out, the ultimate evaluation must be the measure of success attained in actual practice, and they suggest that this should follow a preliminary weeding out of unsuitable preparations by certain tests, many of which could be carried out in a works laboratory or a factory medical department. Even with this scientific approach success in the prevention of occupational dermatitis is doubtful unless the full armour of protective measures is overhauled and reassembled. These measures are well known, and perhaps the most fundamental of them is to prevent, or reduce to a minimum, contact of the skin with the irritant, both by works procedure and by effective removal of irritants from the skin by washing. Medical supervision and nursing services will detect where the cloak of protection is defective. It must be admitted that the whole range of protective measures is of a deceptive simplicity, but nothing short of the concerted effort of management and workers in the daily carrying out of these measures is likely to bring success.

Barrier creams need evaluation not only of their physical and chemical properties but also in relation to other precautionary measures directed towards the prevention of dermatitis. The majority of the barrier preparations in use in industry are of proprietary manufacture, and discussion of the relative merits of named brands is therefore hedged with legal hazards. This position may be clarified, however, now that the Pharmaceutical Society of Great Britain has undertaken, at the instigation of the Advisory Panel on Dermatitis in Industry set up by the Minister of Labour, to consider the determination of formulae for barrier preparations suitable for inclusion in the *British Pharmaceutical Codex*. The results of this work are awaited with growing interest.

MALNUTRITION IN FRENCH CHILDREN

Shortage of food supplies in the United Kingdom during the war was not allowed to affect the health of our schoolchildren. Magee[1] has reported that as a result of an enlightened food policy for the whole nation and special allowances of milk and other food in the schools our children actually grew more rapidly and had better teeth than before the war. In other countries, however, where the food shortage was more serious or where rationing schemes were less well planned and conducted the children were not so fortunate. In countries such as Holland, Poland, and Greece they felt at one time or another the sharpest pangs of starvation. In France the situation was less severe, but ample evidence has been gathered showing that suboptimal nutrition caused a reduced rate of growth and an increased incidence of disease.

[1] *British Medical Journal*, 1946, **1**, 475.

Dr. Harold C. Stuart,[2] of Boston, U.S.A., had excellent opportunities for studying the effect of malnutrition on the children in unoccupied France in connexion with his activities from 1942 onwards on behalf of the American Red Cross. He found that children in Marseilles were inferior to children of the same age in Iowa in weight, height, and length and development of their bones as measured by skiagraphy. This was in agreement with earlier statements by Youmans[3] that the average food intakes of children in this town were 22% below estimated requirements for their age. In a later publication, however, Stuart[4] concluded that the causes of the small stature found in about 50% of the French children must have existed before the war. He was unable to decide whether the factors mainly concerned were nutritional or congenital, but deficiencies in calories, animal protein, and vitamin D were suspected.

A recent paper by Dr. Laporte,[5] also of Boston, is therefore interesting in showing that the dietary limitations imposed by the war had a direct effect on the growth of school-children in Paris. The records of 2,595 children equally proportioned between the sexes were surveyed, and means for the various ages were calculated for the years 1938 and 1944. For boys an average deficit in weight of 6 lb. (2.7 kg.) was found in 1944 as compared with 1938, while for girls the average difference was 3.5 lb. (1.57 kg.). In height the greatest difference for boys was 3.1 in. (7.9 cm.) at the age of 11 years, and for girls 1.5 in. (3.8 cm.) at 7 and 12 years. In support of Stuart's conclusion, however, the average heights for French children, both boys and girls, were less than those of American children even in 1938.

As a minor criticism of Dr. Laporte's studies it may be remarked that the differences in both weights and heights between 1938 and 1944 sometimes varied in a very inconsistent manner. Thus the difference in weight for boys at 6 years was 7.3 lb. (3.3 kg.), at 7 years 0.6 lb. (0.27 kg.), and at 8 years 4.1 lb. (1.8 kg.). Even the large number of subjects examined, therefore, admittedly not equally assorted in regard to age, did not produce the smooth curves which might have been expected in such a study; but these small flaws must not unduly detract from the weight of the evidence as a whole. In view of both stunting of growth and the increased incidence of active tuberculosis during the war years, which is also mentioned by Dr. Laporte, it is obviously desirable that France should strive to put her children's diet on a more adequate basis.

THE ADDISON LECTURE

A former student of Guy's Hospital has given a sum of money to establish what is to be called the Addison Lecture, the first of which will be given in the Physiology Theatre, Guy's Hospital Medical School, on Monday, Dec. 2, by Prof. E. C. Dodds, under the title of "Stories of Endocrine Research." The objects of the Lecture are to commemorate the work of Thomas Addison in endocrinology and to continue in this way the intimate connexion between Addison, Guy's, and one of the growing fields of medicine.

We regret to announce the death at the age of 79 of Dr. J. Shaw Bolton, the eminent psychiatrist, who was for 23 years medical superintendent and director of the West Riding Mental Hospital, Wakefield, and professor of mental diseases in the University of Leeds.

[2] *J. Pediat.*, 1944, **25**, 257.
[3] *Trans. Stud., Coll. Phys., Philad.*, 1941, **9**, 144.
[4] *Amer. J. pubi Hlth.*, 1945, **35**, 299.
[5] *Amer. J. Dis. Child.*, 1946, **71**, 244.

CORONARY DISEASE

PASSAGES FROM THE HARVEIAN ORATION*

BY

Sir MAURICE CASSIDY, K.C.V.O., C.B., M.D., F.R.C.P.

For many years I have been especially interested in cardiology, and I have been impressed, like many others, by the increasing prevalence of coronary disease. Even during so short a period as the last twenty years this increasing prevalence seems to be beyond question. In the year 1926, 64,465 persons died in this country of all forms of heart disease. Ten years later this number was almost doubled—126,584, to be exact. The figures for coronary disease are even more startling—1,880 died in 1926, 14,095 in 1936, and 19,496 in 1939. The crude death rate from all causes per 1,000 persons living fell from 22 in the decade 1851–60 to 12 in 1930, and has subsequently remained almost stationary at about that figure. The similar crude death rate from heart disease, and especially from coronary disease, has risen in a spectacular fashion during this period, and particularly during the last twenty years. In the case of coronary disease the figures increase rapidly year by year—48 per million living in 1926, 148 in 1930, 473 in 1939.

Part of this rapidly increasing death rate from coronary disease is no doubt attributable to the increasing age of the population. In 1900 there were 1,750,000 persons over 65 years of age in Great Britain; in 1937 there were over 3,750,000. It is true that the standardized death rate, corrected for ageing, for policy-holders of the Metropolitan Life Insurance Company of New York shows a 70% decline for diseases of heart, arteries, and kidneys in the years 1940–5, as compared with 1911–15. But this astonishing decline in mortality is for ages 1 to 74. When the figures for the different age groups are examined it is clear that the improved mortality affects chiefly persons up to the age of 25, and is no doubt attributable, in part at least, to more efficient treatment of the acute infections which are largely responsible for cardiovascular and renal deaths in this lower age group. Between the ages 35 and 64 the standardized mortality among men shows little or no decline in the past two decades, and there is in fact an increased mortality now as compared with the level reached in the early nineteen-twenties.

The crude death rates in America, without correction for increasing age of population, have increased as they have done in this country: thirty-five years ago cardiovascular diseases accounted for less than one-quarter of all deaths; now they account for nearly a half.

The Increase in Coronary Mortality

Part of this mounting coronary mortality has been ascribed by some to increasing accuracy of certification. But I cannot believe that this can play a very important part. The position here is very different from that in bronchial carcinoma, for example, where accurate diagnosis is largely dependent on refinements of investigation such as are afforded by bronchoscopy and radiography. Angina pectoris is one of the easiest of all diseases to recognize. Its clinical features have been well known to every doctor since Heberden recounted them before this College in 1768. In most cases electrocardiographic and radiographic investigations are superfluous diagnostic aids.

Certainly the clinical recognition of coronary thrombosis has till recently been hidden from us. Though first well described clinically by Herrick in 1912, its diagnosis did not become widespread in America till about 1920. Curiously enough, it was not until 1925 that McNee brought to the notice of physicians in this country the clinical picture of coronary thrombosis as first described by the American cardiologists, and the rapid increase in the certification of deaths from coronary thrombosis since that date must be partly attributable to this. Even so, I have the impression that coronary thrombosis is far more prevalent than it was. Looking through my notes of patients seen twenty or thirty years ago, I come across occasional cases where I failed to recognize the coronary thrombosis which now, on paper, is the obvious diagnosis. But such cases are surprisingly infrequent. It is interesting to read Mackenzie's notes of Case 112, one of the 160 case records in his book on angina pectoris (1923). He describes this as "one of the most puzzling cases I have met." It is now evident to us that this patient suffered from at least two attacks of coronary infarction, the second associated with pericardial friction, and that six months later the consequent myocardial degeneration brought on three attacks of acute pulmonary oedema, the last fatal.

It is odd, too, that coronary thrombosis figures so infrequently in the post-mortem reports of thirty years ago, despite the fact that the very astute morbid anatomists of those days were fully alive to the existence of this condition.

Consider, too, the clinical experience of great physicians of the past. In his book on angina pectoris James Mackenzie states that "380 patients consulted me for angina pectoris." Osler in his Lumleian Lectures (1910) says: "It is a disease for seniors to discuss, since juniors see it but rarely; indeed, I had reached the Fellowship before I saw a case in hospital or in private practice. During ten years I did not see a case at the Montreal General Hospital and only one case at the University Hospital, Philadelphia. . . . A consultant in active practice may see 10, 15, or more cases in the course of a year, and this is about the figure reached in this country by a consultant with recognized cardiovascular leanings." He goes on to say that he has now seen 268 cases, which included 42 "of the mild neurotic or pseudo form." Contrast these figures with those of the modern cardiologist, who counts his coronary patients by thousands rather than by hundreds, and remember that there was but one James Mackenzie, and one William Osler, whereas the modern cardiologist's name is legion! During the ten years 1898 to 1908 Sir Richard Douglas Powell saw 96 cases of angina, 26 of which he classified as vasomotor angina. Surely Osler, Mackenzie, and Douglas Powell were at least as competent to diagnose angina pectoris as are physicians of this generation!

Increasing Prevalence of Coronary Disease

What is the explanation of the increasing prevalence of coronary disease? In an attempt—and I confess at once a vain one—to find some answer to this question, I have analysed the notes of 1,000 cases of coronary disease, including both coronary occlusion and angina pectoris, seen in consulting practice. I have notes of approximately another 1,000 cases which I have not analysed. I was careful to include only those cases where I was reasonably certain that coronary disease was present. And here may I put in a plea for the abandonment of such terms as angina minor, angina innocens, and, worst of all, pseudo-angina? Either the patient has angina or he has not. If he has, we believe that some portion of his myocardium is ischaemic, usually as a result of coronary atherosclerosis, with or without a coronary thrombosis or a subintimal haematoma. Syphilis is a rare cause of true anginal pain, and embolism a rarer cause still. A severe anaemia may play a part, probably in association with some degree of coronary atherosclerosis, for I have never seen a severe anaemia cause angina in a young subject, though this happens quite commonly in the more elderly. Alastair Hunter, however, has described 12 cases of anaemic angina, of whom ten were women and five were aged 40 or less, the youngest being 31, which certainly suggests that anaemia alone may cause anginal pain.

Anginal pain is sometimes a symptom of rheumatic heart disease, but I have not included such cases in my series because in my experience they do not conform to the clinical picture of the atherosclerotic type, though we know that rheumatic infection may produce somewhat similar coronary changes. I have never seen a coronary occlusion complicate rheumatic heart disease, nor do I feel that anginal pain in a young rheumatic subject has the same serious significance as in the atherosclerotic patient.

We can conceive of the possibility of spasm of a healthy coronary artery producing a localized myocardial ischaemia with consequent coronary pain; but we have no proof that this does in fact ever happen, though we may suspect that an unstable vasomotor control may play a part in the clinical picture of the patient, familiar to us all, who suffers, perhaps for years, from anginal paroxysms of great severity provoked by trivial physical effort, and especially by emotion. Physical

* Delivered before the Royal College of Physicians of London on St. Luke's Day, 1946.

examination may be surprisingly negative, and consequently these patients are often regarded as cardiac neuropaths till at last the diagnosis of organic coronary disease becomes only too clear, perhaps as a result of the sudden and unexpected death of the patient.

Some years ago I used to diagnose "vasomotor angina" not infrequently in patients who complained of anginal pain of typical distribution, this pain being provoked by effort, but especially by emotion, without physical signs of organic cardiovascular disease and with a normal electrocardiogram. Sometimes there was evidence of vasomotor instability, such as easy flushing, or Raynaud-like phenomena, or a history of migraine. But increasing experience has convinced me that sooner or later these patients present undoubted evidence of organic coronary disease. If the same amount of effort constantly provokes substernal pain or even discomfort, however slight, and if this discomfort disappears promptly with rest, I think we may assume with confidence some degree of coronary obstruction, however negative the findings may be.

As for that large heterogeneous group of so-called "false angina," we can only speculate as to the explanation of their pain, feeling assured that it is not of coronary origin. Many of them are suffering from a cardiac anxiety state. There is an interesting, and sometimes a diagnostically difficult, group of patients, usually women, who suffer from severe paroxysms of precordial, usually not sternal, pain, which may radiate into the arms, back, or jaws. These paroxysms may be provoked by emotion, or there may be no obvious exciting cause. They come after rather than during effort, and they are usually widely spaced, with periods of robust health without limitation of physical effort between them. The subjects of these attacks, though sometimes temperamental, are often quite stable psychologically. Their symptoms are very real and severe, and may indeed be quite alarming. Possibly these paroxysms may be due to spasm of the oesophagus or the cardiac sphincter. *X*-ray confirmation of this is obviously difficult to obtain, though I understand that William Evans has made some interesting kymographic observations on this class of case. Diagnosis is made more difficult here by the fact that nitroglycerin gives relief; but perhaps it does so by relaxing gastric or oesophageal and not coronary spasm.

I submit that in the differential diagnosis between true angina and these non-coronary pains careful history-taking is even more important than physical, including instrumental, examination, and that the characteristic and constant relationship between anginal pain and effort is fundamental.

Personal Statistics

Turning now to my own statistics, out of 1,000 cases 779 were males and 221 females, giving a female/male ratio of 1 : 3.5, which seems to be about the usual ratio found in the literature, though in a recent report from the Mayo Clinic on 3,440 anginal patients the female/male ratio was 1 : 4.3. This far heavier incidence of angina in males than in females has never, so far as I know, received a satisfactory explanation. In the past no doubt women led a more sheltered life. But certainly to-day no one would contend that men work four times as hard as women; in fact, some might argue that the reverse is true. I have not been able to satisfy myself that the incidence of angina in women has increased of recent years as compared with that in males. If smoking plays an important part in the causation of coronary disease, which I doubt, we should certainly expect a more equal sex incidence during the next ten years or so.

Nor is there any satisfactory explanation of the unquestionably heavier incidence of coronary disease in the non-hospital as opposed to the hospital population.

As to age incidence, my figures are much the same as those of the Mayo Clinic:

	Under 30	30–40	40–50	50–60	60–70	70–80	80+
Females ..	0	1·3%	11·7%	29%	39%	15%	4%
Males ..	0·25%	3·2%	14·6%	33·9%	36%	11·1%	1%

Approximately 70% of all these patients were aged between 50 and 70 at the onset: 58% of women and 48% of men were over 60 at onset, which confirms the general impression that coronary disease tends to become manifest at a later age in women than in men. In 26 males the age at onset was under 40, in 2 under 30, the youngest being 26. There were only 3 women under 40 and none under 30.

It has become evident that coronary disease in young subjects is not so rare as used to be thought. During the recent war French and Dock have reported 80 cases of coronary disease in American soldiers aged 20 to 36, and Newman 50 cases of coronary occlusion occurring in Service men and women in this country aged 35 or less: 22 of Newman's patients were under 30, the youngest aged 20. At necropsy atheromatous changes were found, in several instances accompanied by extensive calcification. Stolkind reported four personal cases of angina in children, and collected a further 25 cases from the literature. Many of these cases occurred in rheumatic children, and in some the evidence of angina was not very convincing.

Aetiological Factors

Family history plays a notorious part in the aetiology of cardiovascular disease, and it did so in almost exactly half my cases. But this leaves another 50% of patients whose coronary disease cannot be attributed to inheritance.

Stress, mental or physical, is often thought to be responsible for early cardiovascular death, and coronary disease has been brought into the ever-increasing ambit of psychosomatic disease. But do people really work harder or live more strenuous lives than their grandfathers did? I sometimes doubt it. Certainly we eat and drink much less than they did. I have looked carefully through the histories of my patients, and in only 20% of them do I find evidence of subjection to outstanding stresses. Many of them in fact seem to have lived remarkably placid and sheltered lives. Dr. Paul White of Boston, on a recent visit to this country, told us that in the first edition of his book *Diseases of the Heart* a sentence emphasizing the relationship between angina and stress was in italics, in the second edition in ordinary print, and in the third deleted! Nor am I familiar with the "coronary disease personality," as described, at some length, by Arlow.

Tobacco has long been thought to be a factor in the causation of arterial spasm, and there seems to be convincing experimental evidence of this. Numerous workers have demonstrated that the smoking of two cigarettes usually lowers the peripheral skin temperature, diminishes the peripheral blood flow, and raises the systolic, and still more the diastolic, blood pressure. It is said that these changes may occur not only during the smoking of the cigarettes but sometimes for as long as 30 minutes subsequently. This is depressing information to the smoker, but he will be encouraged to hear from Goetz that very similar results are obtained if the subject is alarmed, or asked to do a difficult sum, or even to take a series of deep breaths. Goetz concludes that the driving of a car in traffic would produce more adverse circulatory effects than the smoking of several cigarettes in an armchair at the club!

I always advise sufferers from intermittent claudication to stop smoking, usually without any amelioration of their symptoms. But very occasionally the results are dramatic, and I have seen relapse occur if smoking is resumed. So far as so-called "tobacco angina" is concerned, I have never encountered such a condition, and certainly I have never seen angina cured by stopping smoking. Statistically 17.6% of my coronary patients were non-smokers, 42.6% smoked moderately—i.e., not more than 20 cigarettes a day—39.8% were heavy smokers. As a control I investigated the smoking habits of a small series of non-cardiac cases, and found much the same figures.

Coronary disease persisted for more than twenty years in 11 of my patients, for more than thirty years in 2 of them. The record duration was fifty-two years, in the case of a lady who had her first attack of angina at the age of 30; she was leading quite a busy life at the age of 80, though still liable to angina whenever she walked. She died suddenly at the age of 82.

It has long been known that quite extensive coronary disease is compatible with an active life, and need not necessarily be associated with angina. In fact, this used to be put forward as an argument against the view that angina is due to coronary ischaemia. Coronary occlusion often antedates angina. It did so in 225—i.e., 22.5%—of my cases. Yet before coronary

occlusion can occur there must almost always be coronary disease. Moreover, a remarkably complete functional recovery is possible after a coronary occlusion. One of my patients played vigorous games after a coronary occlusion at the age of 39. He had a second attack at the age of 48, and, against advice, was playing tennis regularly two years later, without any angina. Now at the age of 58 he is at work, plays golf, and mows his lawn without cardiac symptoms.

It is quite common for coronary disease to be entirely latent till sudden death occurs. Prof. Hume of Newcastle tells me that since 1911 he has performed or attended post-mortem examinations on 160 miners who had died suddenly and unexpectedly in the pit or in close proximity to it. The cause of death in each instance was coronary atheroma, and the majority of the men had been working regularly, without complaint, up to the moment of their fatal collapse. Only 40 had premonitory symptoms. In one case there was a clear history of an attack of coronary thrombosis two years previously, after which he had resumed his normal work in the mine and continued it till his sudden death. In approximately 50% of the 160 cases there were old fibrotic scars in the heart muscle.

The explanation of coronary disease without symptoms is presumably that a wonderfully efficient collateral circulation may be formed if arterial obstruction develops sufficiently slowly. As Lowe and Wartman point out, "complete obstruction may, gradually produced, effect no disturbance whatever in the blood supply to the tissue. On the other hand, should the parent vessel supplying the anastomotic circulation become suddenly blocked, the area deprived of blood supply will be much greater than that following blockage of a similar vessel in a normal circulation." Hence, presumably, the sudden fatal attacks in Hume's coal-miners with previously symptomless fibrotic hearts. In this way, too, we find an explanation for the fact that, on the whole, angina in those over 70 runs a more benign course than it does in those under 60.

Relation between Hypertension and Coronary Disease

Investigating this relationship, I classified my cases as having a normal blood pressure where the readings were below 160/100, moderate hypertension those above these figures but below 200/120, gross hypertension where these last figures were exceeded. Throughout the entire series, in 44.6% the pressure was normal, in 33.7% moderately increased, and in 21.7% grossly increased. Excluding those cases in which an existing or recent coronary occlusion was thought to be responsible for a low blood pressure, the figures were: normal tension 30.6%, moderate hypertension 42.3%, gross hypertension 27.1%. So that nearly 70% of my anginal patients without coincident or recent coronary occlusion were hypertensives. These findings surprised me, for I had not realized that the proportion of hypertensives was so high. In a recent paper Fisher and Zukerman say that in the literature hypertension antedating coronary occlusion has varied between 33 and 73%. Of their own 108 cases of coronary occlusion, hypertension antedated the occlusion in 65% of the women and 39% of the men. They point out that though negroes are more prone to hypertension than whites, they show a significantly lower incidence of coronary disease. Nevertheless, one cannot help suspecting that there may be some aetiological factor in common between hypertension and coronary disease. But, unhappily, in spite of all the intensive investigation of hypertension during the last decade, fruitful though it has been, we are still abysmally ignorant of its aetiology: in the words of Harvey, "All we know is infinitely less than all that still remains unknown."

The London County Council allows the staff of its public health and social welfare departments to have free medical treatment at its general hospitals, but not at its mental hospitals. The reason for this restriction is the long-term nature of institutional care associated with mental illness. It is considered, however, that this does not apply to many types of nervous disorder which are in particular dealt with at the Maudsley Hospital, and therefore free treatment is now to be provided there, subject to review in individual cases, as at the general hospitals, when recovery is not affected in twelve months.

DEFICIENCY NEUROPATHIES OBSERVED IN MADRID DURING THE CIVIL WAR (1936-9)*

BY

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Among the 3,116 patients suffering from deficiency disease studied at the Institute of Nutritional Hygiene in Madrid during the Spanish Civil War we selected 98 cases with serious nervous disorders, as we were greatly impressed with their not showing the slightest signs of any skin symptoms connected with pellagra.

"Painful-feet" Syndrome

The most frequent symptoms in these cases were typical acro-paraesthesias occurring mostly in the toes, but also appearing in many cases in the finger tips (patients complained of "pins and needles"; "as though I had ants under my nails"). Generally, together with these acro-paraesthesias there appeared some much more alarming phenomena—patients complaining of "terrible prickings" and "horrible stabbing pains" in the hands and feet or in other parts of the limbs (calves, thighs and forearms). Sometimes after the appearance of these new symptoms or coincidentally there arose what, owing to their close resemblance to the causalgia described by Weir Mitchell, Morehouse, and Keen in wounds of the peripheral nerves, we have called *causalgic symptoms*. Some of the more intelligent or self-observing patients began to notice that their feet had become peculiarly sensitive to heat and unable to bear it. As soon as their feet were placed near a stove they began to notice "pains, and a very troublesome feeling of discomfort." They found that when night came, and especially when in bed, their feet, which during the day had mostly been "insensible and cold as ice," began to feel "very hot like fire." They got to feel as though their feet were on hot coals, and to experience an atrocious sensation of burning which obliged them to push their feet out of the bed and let the cool air of the room get to them, to walk barefoot on the floor, or to wrap their feet in cloths wrung out of cold water. At the height of their illness the patients presented a special sensitiveness of the skin of the affected parts, so that in addition they could not bear the slightest touch on them. But patients also complained of an acute sensation of cold in the extremities often alternating with these causalgic sensations ("my feet and legs are very cold," "my feet are like ice"). Often this sensation of cold became painful, and they spoke of "cold pains inside the feet." Some described the succession of these phenomena very graphically ("I feel as you do when you put your hands into the snow; first I feel very cold about the feet, and then they get warmer and warmer, until I can't bear the heat of them any more, and they burn me").

Other Symptoms

These signs of "painful feet" were predominant, but any or all of the following, discussed in greater detail by Peraita and Grande (1941), were observed in this series: adynamy, depression, lacrimation, insomnia, forgetfulness, reduced acuity of special senses, pernial erythema, hair and nail loss, girdle sensations, amenorrhoea, impotence, polyuria, changes in mucosa and in the motor functions of the gastro-intestinal tract, micturition, and sweat regulation. It was interesting to contrast the rarity of peripheral motor defects and cardiac and skin lesions with the frequency of both cutaneous and proprioceptive sensory changes. Little classical pellagra was observed but no true beriberi, and while neither purified vitamin B nor nicotinic acid was effectively curative of the nervous lesions success was obtained with 90 g. dry yeast daily by mouth.

REFERENCE

Peraita, M., and Grande, F. (1941). *Avitaminosis y Sistema Nervioso*, Serve Madrid.

* Abridged for publication.

HOSPITAL SURVEY

NEWCASTLE AND THE NORTH-EAST

The latest volume of the Hospital Survey of England and Wales* covers the north-eastern counties, Northumberland, Durham, and part of North Riding—an area roughly coterminous with the influence of the Newcastle School of Medicine. The Surveyors were Sir Hugh Lett, now President of the British Medical Association, and Dr. A. E. Quine, of the Ministry of Health.

These Surveyors consider that the area forms a natural medical province, and propose its division into five districts based on Newcastle, Sunderland, Middlesbrough, Darlington, and Durham, in each of which districts there should be a full range of hospital facilities, with the possible exception of a very few highly specialized subjects, all the hospitals in each district forming a combined service. They are of the opinion that the Hartlepools should combine for hospital purposes with Sunderland or Middlesbrough, and that Gateshead, Tynemouth, and South Shields should come in with Newcastle.

A dearth of consultants is noticed in this hospital region, particularly in obstetrics and gynaecology, paediatrics, dermatology, nervous diseases, and psychiatry. In medicine, outside Newcastle, there are only two physicians whose practice is purely consultative—one in Sunderland and the other in Middlesbrough. The financial aspect calls for consideration, for there is not enough private practice in the area to support a large addition to the number. The Surveyors suggest that all recognized consultants engaged in the future hospital service should be offered payment on a part-time or a whole-time basis.

Medical Centre at Newcastle

Newcastle has a first-class teaching hospital in the Royal Victoria Infirmary, the centre of medicine in the north-east, and with the prospect of close association with special hospitals in the city and the development of large special departments at the municipal general hospital Newcastle should take an even higher place as a medical centre than in the past. The proposed construction of a Hospitals Centre at Newcastle, which would include the infirmary and six special hospitals on one site, is regarded as a plan worthy of all encouragement. These hospitals together would provide about 900 beds, but to take them as they stand would result in an ill-balanced aggregate. The Surveyors consider that it would be better to forecast a Hospitals Centre of 1,250 beds, with provision for immediate extension by 250 if this seems advisable when the buildings are nearing completion. This would provide for a large number of acute sick from the Newcastle district and at the same time would be adequate to meet the needs of the medical school and of a consultative centre.

Other Parts of the Region

In the Darlington district there is a single hospital—the Darlington Memorial—modern and well built, which could be developed as a district hospital. In the other three centres—Sunderland, Middlesbrough, and Durham—it is recommended that certain hospitals should join together and by close co-ordination of their work form a united district hospital of at least 600 beds (except Durham, which could hardly sustain that number), staffed by consultants whose work should not be confined to in-patients but should include regular attendance in the out-patient department, charge of beds at associated hospitals, and visits to cottage hospitals.

At Sunderland a united general hospital of 800 beds is recommended, to be provided by the reconstruction of the Royal Infirmary, by additions to the children's hospital, and by the enlargement of the Monkwearmouth. The municipal hospital, already partly modernized, should proceed with its plan of reconstruction and enlargement, with such modifications as may be made after discussion with the United Voluntary General Hospital. At Middlesbrough it is not thought that any of the existing hospitals are suitable for the extension and enlargement required to give the necessary services of a large general hospital for the district, and it is recommended that a new hospital be built to replace North Ormesby Hospital and the North Riding Infirmary. At Durham, as an interim measure, every effort should be made to secure Dryburn E.H.S. hutted hospital, and this and the Durham county hospital should form one complete general hospital for the district. As a long-term policy one general hospital should be established in the Hartlepools, with 350 to 400 beds for the acute sick, and a chronic sick section in addition. It should replace the Cameron, Howbeck, and Hartlepools hospitals, which in the meantime should pool their resources to form one hospital service with three branches.

Intermediate and Cottage Hospitals

The Surveyors urge that hospitals intermediate in size between district and cottage hospitals, such as the Victoria Jubilee Infirmary at Tynemouth, Ingham Infirmary at South Shields, and the Stockton and Thornaby Hospital, and possibly some of the municipal hospitals, should be in close association with the district hospitals, with the placing of their beds and out-patient departments in charge of consultants drawn from the district hospital's staff. Cottage hospitals, in the Surveyors' view, serve a useful purpose, and in this area the great majority are equal to the demands made upon them. The objections to the performance of operations in these hospitals cannot be very strongly sustained if the operating theatre is well equipped, the nursing good, and the accessory services satisfactory, and if skilled assistance is within easy reach in the event of emergencies. But the primary function of these hospitals should be to provide accommodation for patients who can receive efficient treatment from general practitioners.

Taking the area in general, the number of beds for the chronic sick is adequate, though there are difficulties in some rural areas. It is recommended that consultants from the district hospitals should pay regular visits to the chronic sick wards or hospitals.

"The mass of clinical material that these patients provide offers a wide field for clinical research which, if cultivated, would produce a greater knowledge of the diseases of old age and a better understanding of certain other diseases, especially in their later stages, and so lead to further advances in the treatment of all who may be affected by them."

Accident and Orthopaedic Services

The Surveyors call for an extension of the fracture clinic organizations to cover all injuries. This means raising the status of the accident service of the hospitals by making it a department with a visiting surgeon in charge. First-aid work is reported as excellent, but it is suggested that the first-aid station or team at the factory or pit should be an outpost of the hospital and in close touch with it so that the first-aid may be in conformity with the principles practised at the hospital. A hospital with an accident department should also have a rehabilitation department. The view is taken that the treatment of injuries from the survey area is over-centralized at the Royal Victoria Infirmary, Newcastle, where, so far as teaching is concerned, 50 or 60 beds for fractures and orthopaedic cases would be enough. The Surveyors recommend that two general hospitals, one at Durham and the other in the neighbourhood of Bedlington or Ashington (Northumberland), should treat in their accident departments injuries occurring locally which are at present sent to Newcastle. The accident services of Victoria Jubilee Infirmary, Tynemouth, and Queen Elizabeth Hospital, Gateshead, will no doubt be developed. It is also recommended that the five towns of South Shields, Sunderland, the Hartlepools, Middlesbrough, and Darlington should each have an accident department, and that in each of the three counties there should be an orthopaedic scheme in which the hospitals and local authorities would combine.

Further sanatorium accommodation will be needed in the area in the near future, and a closer association between the tuberculosis service and the general hospitals is urged.

"Extreme specialization in tuberculosis and its detachment from other diseases of the chest and from general medicine is not without

* *Ministry of Health. Hospital Survey. The Hospital Services of the North-eastern Area.* London: H.M. Stationery Office, 1946. 5s. net.

its dangers. The separation of this prevalent disease from other branches of medicine has become so pronounced that general physicians now have relatively little opportunity of studying it and its treatment, and the time has come when the position should be reviewed."

As for infectious diseases hospitals, the Surveyors recommend as a long-term policy the provision of a few large institutions, each serving a wide area. The smaller hospitals should gradually go out of use. On maternity accommodation the two Surveyors take rather different views. One of them considers that provision might be made in town areas for 40 to 50% of expected births (15–19 beds per 1,000 births), and the other that planning should be on a more generous scale, providing for 60% of expected births, with antenatal beds in the proportion of one to three lying-in beds (30 beds per 1,000 births). They agree that in each hospital district there should be a principal maternity unit with antenatal and postnatal clinics. Maternity homes in the smaller towns and villages, where the atmosphere is homely rather than institutional, meet a definite need, and more of them should be provided.

DELAY IN SUPPLY OF SPECTACLES

The Faculty of Ophthalmologists recently appointed a subcommittee, upon which the manufacturing opticians were represented, to investigate the causes of the delay in the supply of spectacles. The meeting proved informative and useful and the results of its deliberations were considered by the Council of the Faculty on Oct. 11. It is anticipated that in twelve months' time the accumulation of orders which is the cause of the present delay will have been dealt with and deliveries will be back nearly to normal, but it was agreed to publish six suggestions for the consideration of prescribing surgeons and opticians in the meantime. The Council of the Faculty considers that the carrying out of these suggestions would result in an immediate amelioration of the situation and submit them with confidence. The suggestions put forward are as follows:

1. Except in cases of genuine medical urgency, avoid priority orders.

2. Unless there are good reasons for the contrary, avoid prescribing 1/8 powers, and 1/4 powers over 4D.

3. In the lower ranges, covering the "stock powers," prescribe *flat* lenses; except in the case of bifocals, which are more easily obtained in toric form.

4. Avoid ordering tinted lenses wherever possible. When ordered, give alternative tints.

5. Where possible, indicate on the prescription that a variation of 1/4D. up or down is permissible. It is suggested that this should be done by the sign "± 0.25" on the prescription.

6. Avoid prescribing prisms unless really necessary. All prescriptions including a prism, other than those that can be dispensed by decentration, demand special grinding.

WELFARE OF OLD PEOPLE

During the present century public conscience has been more and more concerned with the living conditions of its old people, a fact which is largely due to the pioneering work of the voluntary social service organizations. With the passing of the National Insurance Act and the promise to reform the Poor Law, much of this work has rightly been transferred to the statutory authorities. But a great deal remains in the voluntary field.

Work of the Voluntary Agencies

In 1943 the London Council of Social Service, realizing that the hardships of war fell heavily on the old people, who despite their amazing fortitude were the least able to put up with them, set up a committee to deal with evacuation problems, home help schemes (before these were introduced by local authorities), special meals services, and a country rest home. During the flying bomb period, when old people were not among the official categories that could be evacuated to billets, a group of voluntary organizations was formed which was able to get large numbers away from the Metropolis.

To-day there are 28 local Old People's Welfare Committees in the London area, their work being co-ordinated by the London Council of Social Service, whose advisory services are always at their disposal. Periodical meetings are arranged for pooling information and recommending common action. The London Council has also taken steps to bring together the associations which run residential hostels for the aged. Consultations of this kind are a useful stimulus and help to maintain standards.

Another part of the London Council's work is research. Investigations are just being completed into special housing facilities for old people, the provision of "home helps" and old people's clubs. The results of this research will be made available to both the statutory and voluntary bodies concerned with the welfare of old people in Greater London. Not only do they constitute a most useful survey, but also are a means of pooling information and ideas; they reveal a vast amount of voluntary effort on behalf of old people—and by the old folk themselves. There are, for example, in the London area alone over 100 old people's clubs, with a total membership of about 10,000. Their chief object is to provide social activities (from table games to summer outings, or "window boxes" to craft work), thus counteracting loneliness, the most distressing feature of old age. Many incorporate welfare services in addition. Old People's Welfare Committees arrange friendly visits to old people in their homes—the simplest and most warmly welcomed form of service. They undertake shopping for old people who find "lining up" too much for them. They arrange special meals services, either in centres where a cheap meal can be bought in pleasant surroundings, or by a mobile canteen service for invalids. They operate clubs and residential hostels.

The London Council of Social Service, which is the principal co-ordinating organization for voluntary bodies in London, and has its counterpart elsewhere in the regional offices of the National Council of Social Service, does not regard this work as of an emergency character. It is "long term" and necessary to fill the gaps which invariably exist in statutory provision. The Council considers that a crucial test of the quality of a civilization is the way in which it treats its old people, and with the rapidly increasing number of old people in this country it regards this as one of the most important of its many social service activities. Its office is at 7, Bayley Street, Bedford Square, W.C.1.

VICTOR HORSLEY MEMORIAL LECTURE

The Victor Horsley Memorial Fund, which was raised in 1920 to commemorate the services of Sir Victor Horsley to Science and the Empire, is devoted to the giving of a lecture triennially in London entitled the "Victor Horsley Memorial Lecture." By invitation of the Trustees (the Presidents for the time being of the Royal Society, the Royal College of Surgeons of England and the British Medical Association, the senior physician of the National Hospital for the Paralysed and Epileptic, Queen Square, the senior surgeon of University College Hospital, and Mr. Stanley G. Robinson, son-in-law of Sir Victor Horsley) the seventh lecture will be delivered by Dr. F. M. R. Walshe, F.R.C.P., F.R.S., physician to the National Hospital, and physician-in-charge, Neurological Department, University College Hospital, in the Lecture Theatre, National Hospital, Queen Square, W.C., on Wednesday, Nov. 27, at 5 p.m. The title of the lecture is "The Contribution of Clinical Study to the Physiology of the Cerebral Motor Cortex," and the chair will be taken by Sir Alfred Webb-Johnson, Bt., P.R.C.S. Admission to the lecture is free on presentation of visiting card.

The midge in Scotland may not be a carrier of infection but its biting propensities make it a serious source of irritation both to the Scottish people and to many tourists. With this in mind the Secretary of State for Scotland in 1944 asked his Scientific Advisory Committee, whose chairman is Sir Alexander McGregor, to advise whether there were suitable repellents which could be used against midges, and whether there were safe methods of destroying them in their breeding grounds. A subcommittee, with Prof. F. A. E. Crew as chairman, was set up and the services of Dr. Ewen Cameron were secured for controlling the field work. In the first place, as a matter of urgency, an empirical investigation into repellents was undertaken in the summer of 1945. An interim report, *Control of Midges* (Edinburgh: H. M. Stationery Office, 2d.) gives an account of the work of the subcommittee, which was able to produce and recommend a formula for a midge repellent, which was made public in good time for the midge season of 1946. The preparation found most effective was dimethyl phthalate (D.M.P.), the repellent used against the mosquito during the war. Tests were also carried out with home-made veils constructed from stout, wide-meshed hospital gauze. When impregnated with D.M.P. they gave complete protection so long as the midge attack lasted; but unimpregnated veils gave no protection whatever.

Reports of Societies

WARTIME RESEARCH IN TROPICAL DISEASES

The annual meeting of the Research Defence Society was held on Oct. 23, Prof. A. V. HILL presiding, when the fifteenth Stephen Paget memorial lecture was delivered by Prof. N. HAMILTON FAIRLEY on "Wartime Research in Malaria and Other Tropical Diseases of Military Significance."

He said that while many of the advances in knowledge of chemotherapeutic control of tropical diseases and chemical control of insect vectors had been obtained from experiments on human volunteers, the fundamental work which placed the new agents at the disposal of medicine was initially made possible only by large-scale animal experiments. New antimalaria drugs had to be tested in the first instance on birds infected with different species of bird malaria, and the toxicity of insecticides such as D.D.T. and dimethyl phthalate on animals.

During the early campaigns against the Japanese in 1942–3 casualties from sickness were from five to thirty times as common as battle casualties; malaria and dysentery were as serious a menace as the enemy.

Chemotherapeutic Control of Malaria

Before the war the knowledge of the protection afforded by regular small doses of antimalaria drugs to individuals not previously infected with malaria (non-immunes) was inadequate. Quinine had been extensively used as a suppressant in the first world war, with results which, though useful, were far from satisfactory. In 1943 at a medical research unit at Cairns, Northern Queensland, 850 healthy volunteers were experimentally infected with sporozoite-induced malaria. During the three years of the investigation the drugs studied included quinine, plasmoquine, sulphadiazine, atebrin (mepacrine), chloroquin, paludrine, and others. It was shown that quinine in certain daily doses was not a satisfactory suppressant in jungle warfare, and that drugs of the sulphadiazine group were not suitable suppressants in New Guinea, as they failed to suppress benign tertian infections. On the other hand, excellent results were obtained in 1943 with Cairns volunteers who had received one tablet (0.1 g.) of atebrin on every day of the week for four weeks prior to exposure to infection, during the period of exposure, and for 23 days after the last infective bite (New Guinea strains). In volunteers infected with malignant tertian malaria atebrin was shown to be acting not by preventing infection, but by producing radical cure as a result of the destruction of the young asexual parasites soon after they had gained access to the circulation. It was shown that if troops took atebrin in adequate daily dosage it was possible for them to go into hyperendemic areas of malaria without significant malaria casualties, while blackwater fever and fatalities would not occur.

Consequent on the establishment of a high standard of atebrin discipline, malaria rapidly came under control. From December, 1943, the malaria rate in Australian troops in hyperendemic areas had fallen from 740 per 1,000 per annum to 26 per 1,000 per annum in November, 1944; with the exception of one A.I.F. division, this low level was maintained throughout the campaigns of 1945. It required a large-scale experiment on human volunteers to convince medical and combatant officers of the extraordinary efficacy of the atebrin regimen; had it been possible to infect animals with human species of malarial parasites the schizonticidal action of atebrin in suppressing and curing malignant tertian and suppressing benign tertian might have been demonstrated much earlier.

New Antimalaria Drugs

In the 4-amino quinoline group of compounds, sontochin and resochin (chloroquin) had proved to be essentially schizonticidal in action; they did not discolour the skin, and they yielded therapeutic results comparable with atebrin. Although effective suppressants, neither was a causal prophylactic. Plasmoquine in large doses acted as a complete causal prophylactic in *P. falciparum* infection, and a partial causal prophylactic in *P. vivax* malaria, but it was too toxic for routine use as a suppressive drug.

Paludrine was shown to be a complete causal prophylactic against malignant tertian infections and a partial one against benign tertian infections in a dosage of 100 mg. daily. Later it was found that a single dose of 100 mg. given 39–120 hours after heavy infection with *P. falciparum* entirely eradicated the infection before there was time for asexual parasites to appear in the blood. The possibilities of a bi-weekly or even a single dose regimen of paludrine applied to native villages and epidemics in hyperendemic areas opened up an entirely new field in the chemotherapeutic control of this disease, not only because of the schizonticidal effects of the drug, but also because of its extreme potency as a causal prophylactic in single doses of 100 mg. given on the 2nd–6th day following infection.

Other Tropical Diseases

Prof. Fairley briefly reviewed the measures found necessary for the control of "jungle dengue." In Northern Queensland dengue was a disease of towns, being transmitted by the domestic mosquito *Aedes aegypti*. In New Guinea, however, it affected large numbers of troops living in the jungle in the absence of this mosquito vector. Lieut.-Col. I. Mackerras and his associates fed four species of mosquitoes on dengue patients in New Guinea and sent them 2,000 miles by plane to Sydney, where they were re-fed on human volunteers. By this means it was discovered that a new vector, *Aedes scutellaris*, was transmitting dengue in New Guinea. The bionomics of this mosquito were carefully studied, and once its habits and breeding places were ascertained rational control measures were instituted. During outbreaks these measures were found to decrease markedly the number of troops affected, and the dengue rate never again reached epidemic proportions in the south-west Pacific.

Carefully controlled clinical and bacteriological investigations in 1941 in the Middle East confirmed the expectations of Marshall that sulphaguanidine would prove a specific cure for bacillary dysentery. Later in New Guinea it was shown that the immediate administration of this drug in full dosage at the onset of diarrhoea aborted the disease under field conditions and eliminated carriers. In 1942 an epidemic of dysentery affected Australian troops fighting over the Owen Stanley ranges. The fate of Moresby lay in the balance. Sulphaguanidine was rushed up by plane to New Guinea and into the forward areas, and the epidemic was controlled within 10 days. In jungle fighting efficient sanitation was frequently impossible, and both in New Guinea and Burma the incidence of diarrhoeal diseases was reduced to an unprecedented low level by the use of this drug in the forward areas. It had the great advantage of not causing renal complications or agranulocytosis, and for this reason could be distributed without medical supervision.

Scrub Typhus

Scrub typhus was a serious disease both in the Pacific and south-east Asia because of its high mortality rate, which approximated to 8%. Two possible measures for its control were developed during the war: (1) the widespread use of dimethyl or dibutyl phthalate as a larval miticide applied to clothing, and (2) inoculation of troops with scrub typhus vaccine prepared from cotton rats. Vaccination was being tested in Burma on a large scale, but hostilities ceased before any definite conclusions could be reached as to its value. On the other hand, definite evidence had been obtained by Major MacCulloch as early as 1943 that dibutyl phthalate rubbed into the clothing by hand would give complete protection to volunteers spending many hours of the day in mite-infested jungles in New Guinea. Though no more effective than dimethyl phthalate as a miticide, it was found to be better retained in clothing, standing up to seven washings. The subsequent widespread use of these anti-mite fluids led to a great reduction in the incidence of typhus in troops operating in the Pacific and south-east Asia.

Finally the lecturer referred to the great value of the new synthetic insecticide, dichlor diphenyl trichlorethane (D.D.T.). During the war D.D.T. had proved of the greatest value in terminating the typhus epidemic in Naples and in the control of both malaria and bacillary dysentery. The final control of many insect-borne diseases had been brought appreciably nearer by the discovery of the astounding insecticidal action of D.D.T. by Müller in the Geigy laboratories at Basle, and by the work of British and American entomologists and toxicologists.

MEDICAL MYCOLOGY

One of a series of meetings in connexion with the jubilee of the British Mycological Society was held at the Royal Institution on Oct. 23, when addresses were given on various aspects of the medical study of fungi. Sir ALEXANDER FLEMING presided.

Dr. C. W. EMMONS, who brought the greetings of the Mycological Society of America, gave the first address, on fungi which caused human disease—a group which was much neglected. Fungous diseases ranged from superficial irritations to deep-seated and systemic fatal mycoses. Medical mycology was not new. Aetiological relationships between fungi and human disease had been known for more than 100 years. In 1839 Schoenlein described the fungus which caused favus, and Lagenbeck the fungus which caused thrush, but very little medical mycological work was attempted. During the last fifty years valuable opportunities had been lost from failure to study more systematically those fungi which caused human disease. The trained mycologist should collaborate with the clinician. Neglect of this field was probably related in part to the phenomenal impetus given to bacteriology by Pasteur, Lister, and Koch, to the fact that the bacterial diseases of man were more common than those caused by fungi, and to the lack of contact between the mycologist and the hospital diagnostic laboratory. The mycoses, with few exceptions, were relatively unknown to medicine. There was now, however, an increasing tendency to recognize fungi among the causes of disease.

In the United States in 1942 out of 1¼ million deaths only 359 were attributed to fungi, but in the registration area this was nearly twice as many as the deaths due to paratyphoid fever, undulant fever, smallpox, rabies, leprosy, plague, cholera, yellow fever, and relapsing fever put together.

The Mycoses as a Group

Some of the mycoses, particularly the superficial ones, were not fatal although common, and there were mild forms of some of the generally fatal diseases, so that the true incidence of the mycoses was not known. Coccidioidomycosis, for example, a mycosis once thought to be invariably fatal, was now known to be mild and self-limited in most cases. There was reason to suppose that histoplasmosis also had a mild unrecognized form, but the evidence rested upon analogy and upon a dubious skin test known not to be specific. Since its discovery and description in 1906 by Darling histoplasmosis had appeared rarely and sporadically throughout the world, until up to the present time about 100 cases had been observed, the majority in the eastern part of the United States, and almost all fatal. But the wide occurrence of skin sensitivity to histoplasmin had been interpreted by some investigators as evidence in support of the existence of a mild form of the disease. Histoplasmin was a sterile filtrate of a synthetic broth culture which was injected intradermally, and, in a sensitized individual, produced within 48 hours a localized area of oedema resembling a positive tuberculin test. Such a reaction occurred in laboratory animals infected with experimental histoplasmosis, and in many people who were not ill and had no history of an illness resembling histoplasmosis. The percentage of the general population reacting to histoplasmin varied in different geographical areas. The subject was of great interest because it might offer an explanation of the occurrence of calcified lesions in the lung in persons who apparently had never had tuberculosis. It had been suggested that there was a benign form of histoplasmosis which gave rise to lesions which healed and became calcified.

Some of the superficial fungous infections such as dermatophytosis and secondary moniliasis were extremely common and annoying. The mycoses as a group were more fatal than some important bacterial diseases, and some were more frequent in mild forms than their recognition indicated.

Diagnosis of Mycotic Infections

The diagnosis of mycotic infections, Dr. Emmons continued, rested largely upon the laboratory. Even the superficial skin lesions caused by ringworm fungi might resemble so closely certain dermatoses due to skin irritants or sensitizing chemicals that a demonstration of the fungus in epidermal scales on microscopic examination or its isolation in culture was necessary in order to make a differential diagnosis. In systemic mycosis the demonstration of the fungus microscopically or by culture was even more important in establishing the diagnosis. Fortunately in dermatophytosis the epidermal scales or infected hair stubs were plentiful and easily obtained, and the laboratory procedures were reasonably effective. Epidermal scales were readily cleared by warming in a drop of 1% sodium hydroxide on a microscope slide. Many media were suitable for the cultivation of pathogenic fungi, but some modification of Sabouraud's agar was commonly used.

The deeper mycoses required slightly different processes. *Sporotrichum* was easily isolated from the subcutaneous abscesses of sporotrichosis by withdrawing pus from an unopened and therefore uncontaminated abscess and spreading it upon agar. *Histoplasma* could be isolated from the circulating blood or from the sternal bone marrow. *Cryptococcus* could be obtained in pure culture from the spinal fluid in cases of meningitis. In pulmonary mycosis, and in cases with ulcerative skin and mucous membrane lesions, where secondary bacterial contamination was sure to occur, bacteriological methods of spread and taking pure cultures could be used. Differential media were of assistance. Serological methods of diagnosis, so useful in bacterial diseases, were not commonly used in the mycoses.

The production of antibodies by fungi seemed to be erratic. In American blastomycosis, or Gilchrist's disease, for example, Martin had reported that in some proved cases antibodies were not demonstrable. In coccidioidomycosis Smith had observed that the complement fixation titre rose as the disease progressed from the acute respiratory phase to the chronic disseminated granulomatous phase.

Distribution of Parasitic Fungi

Trichophyton rubrum was more prevalent in tropical and subtropical areas than in southern zones. Actinomycosis, caused by the anaerobe *Actinomyces bovis*, occurred throughout the world. Sporotrichosis, caused by the single species *Sporotrichum schenckii*, had been reported from the gold mines of South Africa to the plant nurseries of the northern United States. Histoplasmosis was caused by a single species of world-wide distribution. In some cases a mycosis appeared to have become naturalized in a new area after its accidental importation. Thus the striking dermatophytosis known as tinea imbricata, which was native to certain South Pacific areas, was brought to Central America, probably during slavery days, and now grew in localities there. During a visit to Guatemala he saw classical examples, with partially adherent epidermal scales forming concentric and confluent patterns over the entire body surface.

A few mycoses were restricted in distribution. Coccidioidomycosis was endemic in the arid south-west of the United States and in a similar area in Argentina. North American blastomycosis was a peculiar North American disease, most often seen in the States, though it occurred also in Canada. South American blastomycosis was primarily a Brazilian mycosis, though it occurred in other South American countries. Until more was known about the reservoirs of these diseases and the habitat of the fungi causing them it would be hard to explain these geographical limitations in distribution.

As for nomenclature, there had probably been more invalid names than usual selected, as well as an enormous number of transfers from genus to genus. Many fungi had been repeatedly renamed by investigators ignorant of the earlier literature, and there had been too many exponents of the policy of splitting species on the basis of a slight difference between strains. The variability of fungi was a fascinating subject.

Considered from the point of view of the natural habitat of pathogenic fungi they might be divided into two classes: fungi normally associated with man, and fungi which were within his environment and became pathogenic only by chance. The fungi which were pathogenic to man had well-defined morphological characteristics. By far the commonest was that which caused dermatophytosis; it was easily demonstrated in epidermal scales. In mentioning *Actinomyces bovis* he said that, contrary to the often repeated statements that actinomycosis was contracted by chewing straws, the agent had not been isolated from any source other than the human or animal body.

Work on Penicillin

Dr. J. H. BIRKINSHAW, of the London School of Hygiene and Tropical Medicine, followed with an address on recent work on products derived from fungi. British manufacturers, owing to the war, had at first been unable to devote sufficient attention to penicillin production, but the American chemical industry had stepped into the breach. The methods worked out by the Americans had become available to British industrialists. Perhaps the most radical advance was the change from surface culture to submerged culture. The submerged method resulted in a great saving of plant space and of labour and offered fewer chances of contamination. Selection of the most active strain of the mould had received careful attention, particularly since the best strain for surface work was found not to be the best for submerged cultivation.

The chemical constitution of penicillin had at last been solved. Certain of the rearrangements which the molecule underwent were very unusual and could scarcely have been predicted from the ordinary reactions of organic chemistry. A minute amount of the pure crystalline sodium salt of penicillin 2 had now been synthesized. Penicillin was produced so cheaply by the biological method, however, that chemical synthesis had become more a matter of academic than of commercial importance. Penicillins 1, 2, and 4 did not appear to lend themselves to modification, but penicillin 3 might be so modified as to make it possible to obtain an active derivative, partly synthetic in nature, which would be less rapidly excreted than the wholly natural product.

What was the cause of the long delay between Fleming's original observation and the development of the commercial production of penicillin? It was due to the fact that a further partner was necessary in the research team. The mycologist and biochemist could not determine the therapeutic applications of a fungus product without help from their medical colleagues.

Other Antibiotics

The most promising of the new antibiotics was streptomycin, which had very low toxicity. It had now been obtained in crystalline form. It was too soon yet to say what its value was in tuberculosis, but it seemed to hold out great promise. Among other substances to the structure of which he drew attention was expansin. During the war some Dutch clinicians claimed for expansin a modest success in the treatment of mycotic disease of the skin. There were between twenty and thirty antibiotic products of fungi so far isolated in crystalline form. Flavacidin, a fifth penicillin, had a different group in the side-chain; and notatin, an enzyme, was a very potent antibiotic. Although most of the products were antibacterial some were antifungal as well.

Was any advance on penicillin and streptomycin to be expected? Both required complex organic nutrients in the medium for high yields. This was not of much consequence in the case of penicillin, where the adjuvant was a cheap waste product; it was more important in the case of streptomycin. But the addition of such substances was a confession of ignorance, and the task of identifying them must be undertaken.

Disadvantages of Antibiotics

A potential danger was the development of drug-resistant strains of bacteria. The danger might be minimized by using large doses, but could be eliminated only by ringing the changes on the antibiotics employed. Allergic reactions also were not unknown. Another minor disadvantage of penicillin was that it was a mixture of sodium salts of at least four components, whose proportions varied with the strain and method of culture. In two batches of penicillin of equal potency as standardized against a particular organism, say *Staph. aureus*, the activity against other organisms might differ. The chemotherapeutic efficacy, which depended not only on the activity *in vitro* but on a number of other factors, did vary widely. Thus penicillin 4, owing to its rapid destruction in the body, was probably only from about one-sixth to one-tenth as effective as penicillin 2.* It might ultimately be possible to select the most effective form from the chemotherapeutic range.

* From recent American evidence it appears that penicillin 4 has greater therapeutic efficacy than is here attributed to it.

CLINICAL DISCUSSIONS

A clinical meeting of the L.C.C. Medical Society was held at Dulwich Hospital on Oct. 3, when cases were shown by the staffs of Dulwich and St. Olave's Hospitals. 110 members were present.

Dr. LAWRENCE opened a discussion on two cases of hepato-splenomegaly with ascites and asked for suggestions as to the diagnosis and treatment of the ascites, particularly in one of the patients, aged 31, who required paracentesis of the abdomen every 7 to 10 days. There was fairly general agreement that the results of the Talma-Morison operation were disappointing, but an anastomosis between the portal vein and the inferior vena cava (Eck fistula) might be worth trying. Mr. J. L. STEPHEN showed two cases of gastric polyposis and stressed the importance of gastroscopy in diagnosis.

Dr. E. T. BASSADONE opened a discussion on the treatment of pulmonary infarction, which, especially in post-operative cases, frequently preceded a massive pulmonary embolus. He asked for advice on ligation of veins, usually of the leg, from which the embolus spread. Mr. LEWYS-LLOYD advised against tying the common femoral vein, which usually left a swollen, painful leg, and pointed out that there was uncertainty from which leg the warning embolus had come. He advocated early post-operative exercises and the use of intravenous heparin. Mr. G. F. STEBBING pointed out that the majority of cases of pulmonary embolus came from veins giving no symptoms, and that by the time one could definitely suspect the vein of being thrombosed there was probably little danger of the thrombus moving. Dr. B. GOTTLIEB had treated two cases of venous thrombosis with heparin and was not impressed with the results, and thought it would be better as a prophylactic. Dr. B. BARLING pointed out that a venous thrombosis usually started in the calf and the first sign was a rise in temperature, and suggested that instead of looking to the chest to provide the cause of the pyrexia it might be better to examine the legs.

CURARE IN ANAESTHESIA

The Anaesthetics Committee, jointly appointed by the Medical Research Council and the Royal Society of Medicine, is considering the standardization of curare. There are on the market at present two preparations for use in anaesthesia, one amorphous and one crystalline, but both depend for their activity on *d*-tubocurarine chloride. The co-existence of preparations of different potency is a source of danger and may result in serious accidents. The amorphous preparation "intocostrin" has in fact about one-quarter the activity of the pure crystalline material.

There is also some evidence of wide difference in the reactions of the patient, depending to some extent on the state of health of the individual at the time. The Committee therefore consider it advisable in the present state of knowledge to base the dose on the individual reaction to an initial small injection rather than on any dose/weight ratio. In the average healthy adult this initial dose could be 10–15 mg. of crystalline *d*-tubocurarine chloride or 40–60 mg. of "intocostrin."

CONTACT LENS SOCIETY

A new society, purely scientific in object and organization, has been formed for the study of contact lens work in all its aspects. Members may be medical or non-medical, and it is hoped to stimulate interest in the subject among optical workers, doctors, physiologists, and others whose domain touches the question at any point. The secretaries, Mr. A. G. Cross and Mr. G. H. Giles, will be glad to supply information and forms of application for membership on receipt of a request addressed to 65, Brook Street, London, W.1. The first scientific meeting will be held on Jan. 20, at 5.30 p.m., at the headquarters of the British Optical Association, 65, Brook Street. Thereafter it is hoped to hold scientific meetings four times a year, or more often if sufficient material is forthcoming. Membership requires nomination by three members of the Council. The officers of the Society are: President, Prof. Ida Mann; vice-presidents, Mr. F. A. Williamson-Noble and Mr. K. Clifford Hall; joint secretaries, Mr. A. G. Cross and Mr. G. H. Giles; treasurer, Mr. C. H. Keeler. Other members of the Council are: Messrs. J. H. Doggart, G. B. Ebbage, F. A. Juler, Sir Stewart Duke-Elder, Messrs. F. Dickinson, H. B. Marton, G. D. McKellen, and T. Hamblin.

Correspondence

The Plebiscite

SIR,—I have read Dr. Alfred Cox's letter (Nov. 9, p. 707) with interest, especially the last paragraph. Aged 46 now, my recollections of the 1911–12 fight are not very clear, but my impressions are not those of defeat. To give one instance, we gained something in the way of regular consulting hours. Since then our Association has gained much experience in dealing with politicians. The recent "show down" over fees is a good augury for the future. In putting our case for another fight to those who doubt our ability to carry it off, it would be helpful to have a true short history of the events of 1911–13. What points were gained and what were lost? Can Dr. Cox or can you, Sir, supply this? I ask this because I believe that, apart from inadequate remuneration, N.H.I. has been a success. Much of the criticism one hears to-day appears to be unjust and ungracious, and some of it sheer nonsense.

As Dr. Cox points out, the new Act contains one feature at least which is unnecessary and repugnant to most of us. Whether we are "ripe" or not, many of us do not want to be plucked at any price. Sixty-six millions of public money might much more profitably be spent in filling in the gaps in our Health Services where these exist. The training of more nurses in the care of tuberculous patients and deprived children are two glaring examples which would suggest themselves immediately to the unbiased. There must be many others. An initial salary is quite compatible with the sale and purchase of practices (see Spens Report, p. 9). The Association might quite well set up a system of arbitration where the true value of a practice is in dispute. It is a pity that the Minister of Health should be a "managing director controlling all the shares." Mr. Bevan's investing interests are prompted by greed for power. Our individual "vested interests" mean just that small share of power which is freedom and true democracy.—I am, etc.,

Birkenhead. R. W. L. PEARSON.

SIR,—The Council has decided, quite rightly, not to advise practitioners how to vote in the plebiscite. Therefore it is as an individual and not as a member of Council that I should like in one sentence to draw attention to an obvious and certain fact. If all members of the profession remember what happened when the Annual Panel Conference merely threatened to consider asking for resignations, and, fortified by that victory, answer "No" to the plebiscite, there will be by the appointed day an Act under which all would be glad to serve, in which our freedom is guaranteed, and of which the public would be proud.—I am, etc.,

Bristol, 5. H. M. GOLDING.

SIR,—Dr. L. G. Scoular (Nov. 9, p. 707) raises a point about the terms of the plebiscite which must have occurred to many members of the profession. The question "whether negotiations on regulations under the National Health Service Bill should take place with the Minister of Health" may lead many reasonable doctors to answer in the affirmative. Such an answer, in many cases, will merely indicate their desire to learn the proposed terms of service before deciding whether they will join the Service or not.

As yet they do not know the minimum and maximum number of patients they may have to attend, the radius beyond which they need not agree to visit patients, the possibility of obtaining an assistant, the basic salary, the capitation fee, the age at which they may retire, the arrangements for off-duty time, and so on. It does seem reasonable to seek information on such points, but answering the plebiscite question in the affirmative surely cannot be interpreted as expressing ultimate willingness to join the Service.

Secondly, if the majority of the profession answer in the negative, the B.M.A. will still be impelled to negotiate with the Minister of Health for the sake of those members who do intend to serve as National Health Service doctors.—I am, etc.,

London, N.22. A. J. M. BUTTER.

SIR,—The profession should be grateful to Dr. Alfred Cox (Nov. 9, p. 707) for his letter of advice to the profession on this new plebiscite. Is to-day the twilight of our freedom? In the *Sunday Times* of Nov. 10 I see that the Lord Chancellor is quite clear about the attitude of the legal profession on the question of their freedom. "We of the legal profession have in the past asserted our freedom and independence from the interference of the Crown. To-day we are prepared to assert our freedom and independence from the Executive."

The question for our medical profession is, Are we prepared to take the advice of the Lord Chancellor to the legal profession and assert our freedom from the Executive?—I am, etc.,

Horsham. SYDNEY GORDON TIPPETT.

SIR,—It seems to me that a far greater political responsibility lies on our profession than many realize. During the war, in the course of 90 minutes, we handed over all our cherished liberties and freedoms. We have not got them back. On the contrary they become constantly fewer and more restricted. We have now the opportunity of being the first organized body in the kingdom to call a halt to this ill-considered and doctrinaire coercion that passes for policy, and to cause at least one embryo dictator to reconsider his position and the advisability of listening to reason.

I often wonder how long his liberties can be quietly whittled away before the average Briton will explode into resistance. Some such thought I find also in my patients who ask, "When are" or "Why don't you doctors do something about it? You are in such an unassailable position." Many deeply concerned in the country's affairs are watching us closely and, I believe, hopefully. They are looking for a lead. I would go further and say that in many countries the world over the course of events in our islands is eagerly watched to see how far the British are prepared to be browbeaten by their politicians. In war we doctors are non-combatants. If in this peace we are called upon to be the vanguard of the defence I for one will feel honoured. For old men who loved it and young men who have suffered for it need have no hesitation in combining to fight for our reasonable freedom and integrity. After hearing Dr. Dain it is so clear that we have nothing to lose and everything to gain. So let us to it. And let the first round be on the paper: *responsum negativum*.—I am, etc.,

Teignmouth. JOHN A. TIPPET.

SIR,—I trust that every member will read the letter of Dr. Alfred Cox (Nov. 9) and give it every consideration. It is an able summary of the situation confronting the profession to-day and it refers also to the effect of the present trend of legislation on the general community which is of supreme and urgent importance. We medical men are principally concerned with the art of healing the sick; but when this art has to be subsidized and controlled by the State whereby both patient and doctor become mere pawns in a political game and the liberty of each individual is threatened, all doctors should realize that in opposing the National Health Service Act they are defending the right of every man to shape his own destiny, which is surely his birthright.

Dr. Cox refers to the history of the fight over National Health Insurance in 1911–12 and states that "the present circumstances are not at all comparable." Here I must disagree. We non-panel men, who opposed that Act, saw in it the forerunner of the present Act and freely broadcast our opinion at the time and for many years afterwards and warned the profession what would eventuate. I do not wish to enlarge upon this; but the whole measure was blindly adopted from Germany, where it was instituted as a purely political measure for the purpose of enslaving the German people. That was not recognized by the Association as it should have been; but now I hope the majority of the Association fully recognize the seriousness of the situation and the effect such a measure will have on the future welfare of our race. The present time is witnessing the destruction of higher values—the tail is wagging the dog—and in the words of *Ecclesiastes* it might be said—"I have seen servants on horseback and princes walking as servants upon the earth."—I am, etc.,

Edinburgh. FREDERICK PORTER.

SIR,—The National Health Service Bill has received the Royal Assent in the House of Lords; the British Medical Association has circularized every member of the profession, and we now all have the plebiscite forms before us. At last has arrived that crucial moment when the profession must decide once and for all whether it will sell its precious freedom, handed down to it by generations of its forebears, for a mess of pottage—and what a mess!

Part B of the report of the Negotiating Committee is, in my humble opinion, admirably compiled and should clearly demonstrate to every general practitioner that once he accepts the Bill as it stands but merely tries to negotiate for better terms of service, etc., he loses not only his own freedom, but the patient's freedom—in other words, he supports the principle of the "closed shop."

Let us all stand firm and refuse to negotiate with any Minister or Government that shows its contempt for the individual and, what is more, for the profession by its relations with the Negotiating Committee in the past. This is our last chance. If we fail here we can never raise up our heads again as a free and honourable profession. We shall be subject to the whims of any future Minister of Health to vary our terms of service and working conditions. We might as well give up all hope and agree to a whole-time service with a 40-hour week and life in a prefab.—I am, etc.,

East Grinstead. A. C. SOMMERVILLE.

SIR,—May I, as one of the young practitioners to whom the Minister of Health is so anxious "to give security," add one more letter to those already published on the subject of the plebiscite? In my opinion the majority of the men and women entering the profession of medicine to-day (as always) do so not because it is a safe job but because that is where their interest lies. Many letters have appeared in your columns in the past from Service doctors complaining of the petty restrictions and loss of personal freedom to which they were subjected, and although this may be necessary to a degree under these circumstances, it must be avoided at all costs in civilian practice.

Thus I consider that the only answer to the question of negotiation with the present Government is "No" if we are to preserve our freedom and that of our patients. As at the moment I am not a free agent, I beg to sign myself

SURGEON LIEUTENANT, R.N.V.R.

SIR,—With the beginning of the plebiscite each individual doctor is faced with a difficult decision: "To negotiate or not to negotiate on the regulations." To a comparative few the answer will be an incontrovertible "No." Most of these will consist of those retired, senior men near retirement, some who are in salaried jobs, in entirely private practices, or those who have been prominently identified with and advocates of B.M.A. policy. These will say "No" at any price, both to the question of negotiation and that of joining the Service.

Another section of men will say "Yes." Among these will be numbered those who have heavy commitments, unpaid debts, children to educate, and those who are not well up with all that has been written and discussed and has taken place during the past year. Many of these will be doctors working, by circumstances or because they prefer it, in isolation. Many men will feel it impossible to say to-day, without further information about terms of service and the inclinations of their fellow doctors, what they are prepared to do in April, 1948. Many will feel it personally safer to say "Yes," with, as Dr. Dain says, the further opportunity of saying whether or not they wish to enter the Service. On the other hand these doctors will be rather intimidated from giving a negative reply because "implicit in such a negative vote . . . is an undertaking, *if so advised by the Association*, not to enter the Service" (plebiscite form). Their comfort should be the words in [my] italics, as advice to do this will be based on receipt of an adequate majority of negative replies.

Some men in this category may also have been misled by an impression that Mr. Aneurin Bevan, during negotiations on the regulations, may compromise on certain objectionable features of the Act, particularly that of the basic salary. During the discussions in the House of Commons on the negative Lords amendments, the Minister said that he did not want to have his hands tied on the method of remuneration when he came to discuss matters with the doctors. Also, following a statement by the Lord Chancellor in the Lords when the amendments went back, these crucial items were not persisted in, although Lord Moran and Lord Horder did their best. The Chancellor again gave the impression that remuneration had still to be discussed with the doctors. It should again be emphatically stated that there is no hope whatever that the Minister will, or even can, remove the obnoxious basic salary from the Act. The amount of remuneration is still open to discussion, not the method. Strangely enough this receives no mention in the "Summary of the Act," in the *B.M.J.* In this connexion, some doctors to whom I have spoken in the last few days frankly do not believe that the amount of basic salary can be altered by a stroke of the pen to 100%.

There is, finally, a bulky section of the profession, fully acquainted with the facts and also with heavy responsibilities, who find it difficult to answer "Yes" or "No." Their responsibilities would lead them to answer in the affirmative, while their full knowledge of the implications of the Act and the temperament and mind of Aneurin Bevan make them want to answer in the negative. All such doctors looked hopefully for some more definite leading from the B.M.A., but in vain. They may have good reason for this, in order to get the profession to make a decision without pressure and then stand by it. The answer will more likely be a firm one to a further plebiscite (as I hope) on the question whether or not to enter the Service.

Having analysed the problem as a doctor belonging to the third category, my purpose in writing this letter is to urge the B.M.A. before Nov. 30, by publication of definite inside information about the mind and intentions of him with whom we have to deal, to help us to make what may be the hardest decisions of our lives. This should be done immediately through the columns of the *B.M.J.*, and/or by rapidly called mass or Divisional meetings; and the majority one way or the other will be more decisive if those who answer "No" are also given a later opportunity of saying whether or not they wish to enter the Service if the "Ayes" have it and negotiations do ultimately take place. If the B.M.A. agrees with Dr. Alfred Cox that we, as a profession, are in danger of losing our soul, they should sound the trumpet call with no uncertain sound. "No negotiations." The plebiscite would still give the answer.—I am, etc.,

London, S.W.17. E. GERARD HOUSDEN.

SIR,—A perusal of the plebiscite papers issued by the Association seems to confirm just those fears which I expressed in the letter published in the *Journal* of Aug. 10 (p. 206), namely, that confusion would be created in the minds of a large number of doctors unless the implications of entering into negotiations on regulations are made clear beyond all doubt. In any such discussion the structure of the Act remains unchanged and unchangeable, and the inevitable implication is an acceptance on the part of the negotiators of that structure. To say therefore that discussion does not imply agreement to enter the Service is an empty form of words; for all experience shows that such would be the inevitable result.

So much has been written and said about the Health Service that there is danger that truth may be lost in a fog of rhetoric. It would be tragic indeed if now that it comes to a crucial vote a wrong decision were made through a misunderstanding. It seems a pity that the Association in their final survey have used so much "wrapping" to the "meat." At this late stage therefore I do beg that you will use your columns to bring the issue clearly before your readers and above all briefly and concisely.—I am, etc.,

Derby. E. D. BROSTER.

Northern Ireland and the Plebiscite

SIR,—We in Northern Ireland are to be asked in the questionary whether doctors should negotiate on Mr. Bevan's new Bill. Those of us who signify "No" should realize that we are disagreeing only with the British Bill.

The Northern Ireland Minister of Health, Mr. Grant, a Conservative, who is at present considering an alternative measure, may decide upon: (i) Capitation fee only; (ii) freedom for voluntary hospitals; (iii) right of appeal; (iv) no positive

power of direction; (v) retention of the sale value of practices; and (vi) definite hours of leisure. Then, I think, doctors here could show Mr. Bevan how co-operative they could be with a Bill which satisfies them.—I am, etc.,

Dungannon. CONN MCCLUSKEY.

National Health Service

SIR,—I have read with great interest the letters to your *Journal* on the above subject. I should like to comment on one point, namely, the Minister's insistence on the abolition of the buying and selling of practices. The Minister's reason for this is given by Dr. J. R. Salmond (Oct. 12, p. 555): "The Minister states that the sale of practices is abhorrent to him, as it loads the young doctor with debt." This, Sir, is political eyewash! The real reason is that by the abolition of the buying and selling of practices the doctor is handing over his practice to the Government or, more simply, selling his property to the Government, thereby losing his rights and thereby becoming a Civil Servant under complete control of the Government.

Mr. Bevan may offer us 15s. per patient now as a bribe to enter his precious Service, but what is to prevent him from reducing it to 10s. or even 5s. in a year's time or five years' time with some vague political excuse?

One hears people say that the Labour Government is in power and they were given the power by the vote of the people. Are we to be ruled by the vote of a people that cannot think for itself and whose only information is that derived from the Press, which it seems to swallow hook, line, and sinker, and which throws aside Mr. Winston Churchill immediately after victory?

The general practitioners do not seem to be able to expect any help from the specialists. Lord Moran referred to an "unfortunate dispute that had arisen at the eleventh hour" between the Minister and the general practitioners. What does his lordship expect? Does he think we are so gullible and have so little intelligence as to be wiliing to suffer the dictatorship of Mr. Aneurin Bevan? Does he think that the chartered accountant or lawyer or anybody else that can think for himself is going to be dictated to by some such person as Mr. Bevan? The general practitioners must not be led up the garden path by this clever political eyewash which seems to be blinding the specialists. We must refuse to negotiate with Mr. Bevan so long as he insists on the abolition of the buying and selling of practices, unless and until we desire to become Civil Servants.—I am, etc.,

Mansfield. HUGH TATE.

SIR,—In the original Beveridge report, but conveniently omitted from the abridged version and confirmed in the recent debate in the House of Lords by the Lord Chancellor together with an implied and gratuitous insult, control of certification is stated to be essential. In the past we have frequently fought against the encroachments of the State on personal liberty both at home and abroad; the most recent being the last war. This is a Christian country with its inevitable emphasis on the individual and the family. In Fascism, National-Socialism, and Communism the emphasis is on the abnegation of individual freedom and its substitution by a Dictator State. Past correspondents have feared that refusal to accept the Service is a strike. It is not; it can only be a strike *after* accepting service. Are we, as an ancient and honourable profession, going to sell our individual and intellectual freedom for a pittance and a pension under an alien creed? One may be sure that this, though the first, will not be the last of these encroachments on personal liberty. May I suggest that the issue is not for the plebiscite to be on negotiation, but a simple "Yes" or "No" to the basic principle, Do we accept service under the National Health Act with its inherent infringement of liberty?—I am, etc.,

Redruth. W. M. RICH.

Training of the Specialist

SIR,—As a recent ex-student of Prof. Harry Platt I read with special interest his excellent letter (Sept. 28, p. 472) on the training of the specialist. The final sentence of this letter read, "The universities also have their part to play by demanding evidence of such a standard of training before they recognize any individual as a clinical teacher." This brings to notice an important matter of medical reform, especially for the student. I had hoped that in the future better facilities would be given for the teaching of medicine to the man with the calling for this somewhat arduous task rather than place the whole of medical teaching in the hands of the specialist whose clinical ability remains undoubted but whose teaching ability may fall short of the minimum required. I should like to suggest that in the future medical teachers should be chosen not on purely clinical merit alone but for their general characteristics as well. Surely some of our best and most esteemed general practitioners could be asked to give their help in giving to the student of medicine at least an inkling of the vastness of medicine practised outside hospitals? After all "the general practice of medicine" is the real foundation stone of specialization. If this is impracticable I should like to suggest that teachers be chosen from those who, apart from their hospital appointments, have spent considerable time in general practice.—I am, etc.,

Taunton and Somerset Hospital. HUMPHREY THOMAS.

Demobilized Specialists

SIR,—At the risk of harping back on a closed subject I should like to put forward a point of view that seems to have been missed from previous correspondence relating to demobilized specialists.

I cannot agree with Lord Moran and others (July 27, p. 134) that the R.A.M.C. officer who attained graded specialist rank during the war should be given special help to continue his specialty. Should this facility be granted it would be at the expense of the medical officer who "risked his neck" with field units. In my experience it was not the best type of officer who filtered into the general hospitals. The doctor who knowingly sacrificed clinical experience to serve at great personal hardship and risk with field medical units will, because of his force of character, make the better specialist if given the chance. It was always possible to volunteer for service with a field unit during the war, if one was physically fit. Therefore, medical officers in hospitals were in many cases either not physically fit or disinclined for "active service." Neither category I think is specially suited for priority help to attain the higher ranks of our profession. I should like to press therefore for no official recognition being granted to those fortunate men who attained graded specialist rank during the war.—I am, etc.,

Haifa, Palestine. J. S. MCKENZIE POLLOCK.

Postgraduate Education

SIR,—In his thoughtful letter (Oct. 5, p. 510) Mr. John Stallworthy referred to the kindness and assistance shown him by medical colleagues since he came here, as a stranger, thirteen years ago. I would be grateful if you would allow me to voice a similar tribute on behalf of the doctors of another Dominion, and to stress how much Australian medicine owes to the gracious reception given to medical visitors from the Antipodes.

My introduction to this facet of medical liaison was in 1918, when postgraduate work had to be found quickly for those medical officers of the Australian Army whose return to their own country was delayed by transport difficulties. On my putting the problem before the late Sir J. MacAlister, at the Royal Society of Medicine, his answer was, "If you will find the men we will find the teachers and the facilities." The Fellowship of Medicine was founded early the following year, and mainly through its help a large number of our medical men were able to work in the United Kingdom for periods varying from three months up to two years. They carried the gospel back with them to Australia, and their enthusiasm led in 1921–2 to the formation of the Postgraduate Committee in Melbourne, to which Mr. Stallworthy refers. There is now a committee of this nature in each of our capital cities, the one in Sydney being a very live one.

In a recent issue of the *Medical Journal of Australia* this committee announced courses in diseases of women, a twelve weeks' course for general practitioners, courses for Parts I and II of the Master of Surgery, of the diplomas of women's diseases, of ophthalmology, of laryngology and otorhinology, and for candidates proceeding to the diploma of psychological medicine.

milar courses are being run in Melbourne. Examinations for e primary F.R.C.S. and M.R.C.O.G. are to be held in ustralia early next year, and certain of the courses listed above re designed to be suitable for candidates taking these examinaons. This action emphasizes the value which is attached to, id the demand for, British diplomas. In the years between e wars many Australian medical graduates came to the nited Kingdom to work and were warmly welcomed. Everye was helpful and many of these visitors are now on the affs of our teaching hospitals.

The end of World War II produced a similar position to at which obtained in 1918. Scores of young medical men ho had gone straight from hospital into uniform were being emobilized and were anxious to get back to full clinical work gain. Australian universities, general hospitals, and postraduate committees did all they could, but a considerable umber of the applicants wanted to come here, and higher uthority encouraged this view. Maj.-Gen. S. R. Burston, .G.M.S., of the A.I.E., made a special trip home to study the osition at first hand and was well received. There were two ifficulties: (*a*) placing men here when they came, and) finance to enable them to come. Sir Francis Fraser and is staff undertook the placing, providing numbers were limited t first. The Nuffield Foundation announced their medical ellowships for medical men from the Dominions and India, nd the Australian Red Cross made a generous money donation. his fine gesture of the Nuffield Foundation has evidently scaped Mr. Stallworthy's notice. Recent letters do not support is suggestion that "many men are asking why they should ross the world for training, which they may or may not be ble to obtain, when they have the assurance of obtaining it uch more easily and cheaply nearer home." The number f applicants for the official schemes far outnumber the places vailable, and many disappointed men are making their own rrangements to come. The official nominees are carefully elected with a view to providing the teachers and research orkers of the future, and as such they will mould medical pinion in the years to come. Of necessity there must be a umber of men who from one cause and another will have to o their postgraduate training in their own country, but present ndications suggest that many of the Australian teachers of the uture will have worked, in one capacity or another, north or outh of the Tweed. What is valued most is the opportunity o gain an insight into British methods of teaching and the ideals," for want of a better word, which inspire medical ractice in the United Kingdom. Personal contact is necessary or this. The man who describes a trip to this country as "going ome" will make every endeavour to do so, whether it be for ostgraduate work or for some other laudable reason.

In conclusion, may I support warmly the suggestion in the ast paragraph of Mr. Stallworthy's letter regarding the coordination of postgraduate units here and overseas and all that his entails. British visiting doctors can be sure of a warm elcome in Australia whether they go out on official or private rrands, to lecture to postgraduate classes, or to conduct exminations. In addition to the benefit derived from the interhange of views, such visits enable the hosts overseas to make ome little return for the kindnesses which have been extended o them or their friends when in the United Kingdom.—am, etc.,

Ruthin, N. Wales. JOHN H. ANDERSON.

Smallpox in the Vaccinated

SIR,—I am glad that Dr. J. Ross Innes (Nov. 2, p. 668) thinks ny comments are "most helpful and sound." As I have eceived far more kicks than halfpence for the views about mallpox and vaccination which I have tried to put over during ny professional life it is naturally pleasant and gratifying to eceive occasional commendation. For the same reason it is ice to know that Dr. H. Angell Lane, a public vaccinator, pproves of my recommendation of "little and often" as the est policy for protecting anti-smallpox staff.

When he states, however, that in the early years of the cenary I was "claimed by the Anti-vaccination Society as their hief supporter in the medical world" he is, I think, drawing pon his imagination rather than upon facts. It is true that have often been quoted by *The Vaccination Inquirer*, the official journal of the National Anti-vaccination League, but that is easily explained, for I have never hesitated to draw attention to facts which told against vaccination as well as to those which told in its favour. I have never attended a meeting of the League, but I once offered to deliver a lecture before them if they would allow me to do so, which offer I may say was politely declined. Moreover, in everything I wrote or spoke about smallpox and vaccination I always tried to make my faith in the efficacy of vaccination to (temporarily) protect the individual quite clear, and it was in the early years of the century (in 1903) that I gave a practical proof of the strength of this faith by taking my wife and two young children into the Leicester smallpox hospital and photographing them by the bedside of a severe confluent case of major smallpox. I told the anti-vaccinists that in denying the power of vaccination to protect the individual they were beating their heads against a stone wall. At the same time, however, I quite admit that I have given the anti-vaccinists credit for several important contentions, which lapse of time has I believe shown to be correct, and which at that period were hotly disputed by ardent pro-vaccinists, e.g., that it was not infant vaccination which was banishing smallpox from this country; that infant vaccination was not necessary for the effective control of smallpox; that vaccination ought to be regarded as a serious operation which was not infrequently attended by serious after-effects, and that therefore compulsory infant vaccination ought to be abolished. To-day, I think, all these contentions will be generally conceded, or at least not seriously disputed, but we ought in fairness to recognize that it has been largely due to the steady and untiring propaganda of the National Anti-vaccination League—apart from the inexorable logic of events—that this great change in public opinion has been brought about.—I am, etc.,

Leicester. C. KILLICK MILLARD.

Classification of Psychological Disorders

SIR,—With reference to my paper in the *Journal* of Aug. 31 (p. 289), Sir Charles Symonds (Sept. 21, p. 436) has raised some queries in relation to the chronic problem of classification. By not differentiating between anxiety neurosis and anxiety state I have conformed with modern views—see official *Nomenclature of Diseases*, 1931, *Army Classification of Psychiatric States*, 1942, and *Textbook of Psychiatry*, by Henderson and Gillespie, page 423 *et seq.* The latter authorities refer to the special Freudian interpretation of anxiety neurosis, but many other parts of the text do not differentiate between "neurosis" and "state." The same lack of differentiation is apparent in the numerous papers on psychotic breakdown in war, where the terms anxiety neurosis and anxiety state have been freely used, although the term anxiety "neurosis" does not appear in the official military nomenclature. It is obviously significant of the very nature of the problem that most textbooks describe but do not exactly define these conditions.

To economize space on a controversial subject, I would suggest that many further points are best answered by restating some generally accepted principles: (1) The same trauma may produce very different psychiatric reactions in different people; (2) many psychotic patients show neurotic symptoms during the course of their illness; (3) psychiatric illness is rarely entirely due to reactive or endogenous factors; (4) neurotic patients may develop psychosis. As a rule, therefore, there is no "either/or" in the matter; one has to diagnose the predominating pattern of illness, deciding whether this pattern is chiefly depressed in the psychotic or mainly anxious in a neurotic sense. Similarly, psychotic depression or anxiety neurosis (or state) may be mainly reactive or mainly endogenous, hence the considerable inquiry entailed in psychiatric case-taking.

To return to the chief subject of the paper—electric convulsive therapy rather than classification—it should be emphasized that observation of the reaction of the patients showed that it was most necessary to decide whether depression of a psychotic type prevailed as opposed to anxiety, obsessions, or other neurotic symptoms. A certain amount of depression often occurred as a secondary feature in the primarily neurotic clinical picture (i.e., neurotic depression), but the important point for the therapeutic result was correct diagnosis of the prevailing reaction type. Tables (2), (3), and (4) showed that

with the usual E.C.T. frequency of treatment there was considerable difference in the result between these main types, not to mention other responses. The presence of "anxiety neurosis" or of "anxiety state" was of academic rather than practical interest.

It follows that occasionally one will meet a patient in whom psychotic and neurotic factors appear evenly balanced. Such cases are often recent, and more common in the general hospital psychiatric population than in mental hospitals. The decision on therapy may be difficult; hence my remarks on the therapeutic test. Generally speaking, the patients' response to E.C.T. was consistent with the accepted textbook symptomatic classifications, even if it did at times show up one's own diagnostic mistakes.—I am, etc.,

Sutton. D. E. SANDS.

Priority Foods

SIR,—It amazes me that the Food Rationing Advisory Committee did not think of the milk rationing modifications suggested in this *Journal* by Mr. A. Staveley Gough (Oct. 12, p. 551) and Dr. Lindsey Batten (Oct. 26, p. 626) and in the *Daily Telegraph* of Nov. 8 by Dr. Ellis Parkinson. The cancellation of the meat and cheese rations for all persons suffering from any of the classified diseases except *active* tuberculosis would certainly effect a considerable economy without harming anyone by greatly reducing the number of claimants.

A reduction in the allowance of priority milk from one pint to half a pint daily could and should often be made. This could surely be safely left to the discretion of the patient's medical attendant. Is there no hope that these suggestions may even now be made to the Minister of Health for his consideration and action?—I am, etc.,

London, S.E.12. E. M. LYNTON-LOW.

The Milk Ration

SIR,—The basic ration of milk has come down to two pints (1.14 litre) a week. The minimum priority allowance (except for sick children not attending school) is seven pints (4 litres) a week. It is not reasonable to expect a worker, on the first day of his return to work, to be able to adapt himself to the sudden reduction from seven pints to two pints per week—or to make this sudden adaptation on any other day. Many people, working or aged, get along quite well on an allowance of three and a half pints (2 litres) a week, but not on two pints, especially when this reduced quantity is imposed suddenly after a priority of seven pints.

I suggest that a priority category giving a claim to three and a half pints a week would be welcomed by doctors; that no patients in need of milk would suffer; and that much priority milk could be saved for general distribution. Other sensible suggestions for reductions in priority amounts have been made. By means of this new category a great saving could be made, yet no individual need necessarily have his quantity of milk reduced unless his doctor approves.—I am, etc.,

Crowthorne. H. D. FORBES FRASER.

Legal and Medical Insanity

SIR,—I have read with much interest the various letters in the *Journal* on this important matter. There is, to the informed, a great difference between the two forms of insanity, and if the McNaghten (the name is spelt variously) Rules are given careful study it is impossible to see where they fail to fulfil their object.

The rules are summarized briefly as follows. (1) Every man is presumed to be sane and to possess a sufficient degree of reason to be responsible for his crimes, until the contrary be proved to the satisfaction of a jury. This is one of the presumptions of law just as a man is presumed innocent till found guilty. Furthermore the law of England makes juries the judges of fact, and under our judicial system it is the function of a jury to decide after hearing evidence on the matter to say whether an insane person falls within these rules. (2) To establish a defence on the ground of insanity, it must be clearly shown that, at the time of committing the act, the party at the time was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or (if he did know this) not to know that what he was doing was morally wrong. (3) If the accused was conscious that the act was one which he ought not to do and if that act was at the same time contrary to the law of the land, he is punishable. The test is the power of distinguishing between right and wrong in regard to the particular act committed. (4) Where a criminal act is committed by a man under some insane delusion as to the surrounding facts, which conceal from him the true nature of the act he is doing, he will be under the same degree of responsibility as if the facts were as he imagined them to be.

The words "nature and quality of the act" in No. 2 do not mean the physical act and the morality of the act respectively, but apply alone to the physical character, and were not intended to distinguish between the physical and the moral aspects of the act (*R. v. Codere* 12 Cr. App. R. 21). These rules have been the subject of much consideration and criticism by both medical and legal writers (Stephen, *Hist. Cr. Law*, pp. 124–186; Mayne, *Ind. Crim. Law*, 4th edition, pp. 169 *et seq.*; Wood-Rentin in *Lunacy*, pp. 885–914), and Dr. J. A. McCluskie (Oct. 12, p. 555) once again revives the old discussion. I am very surprised to see that Dr. McCluskie asks what is meant nowadays by the words right and wrong; even with the modern trend of living the dictionary meaning of these words has not altered. Surely he does not think it right to kill? Murder, after treason, has from time immemorial been regarded as the most heinous crime,: and even the learned judge has not a discretion in the punishment once the jury have returned a verdict of "Guilty." He is bound in the absence of a defence of insanity having been established to impose the death sentence.

It would take many pages of your paper to go into this vast subject at length, but those of your readers interested might read *R. v. Hay* 1899 16 Cape of Good Hope Reports (Sup. Ct.) 290; and *R. v. Jessamine* 19 Canadian Crown Cases 214; where in the former case it will be seen that South African (Cape) Law was laid down stating that the capacity to distinguish between right and wrong is not the sole test. Lord Bramwell's apt test is surely the correct one: "They would not have yielded to their insanity if a policeman had been at their elbow," and analysis of the McNaghten Rules surely fits into this saying. Moral insanity as a defence is not yet accepted in England as falling within the McNaghten Rules, while insane impulse (kleptomania) is often put forward as a defence in courts of Petty Sessions to charges of petty thefts as these courts do not possess the power of ordering an accused person "to be kept in custody as a criminal lunatic." Nor is a defence of unconscious automatism familiar in our courts, unlike Continental tribunals. If careful study is given to the McNaghten Rules a psychiatrist must surely realize where the line is drawn between legal and medical insanity.—I am, etc.,

C. J. DE VERE SHORTT, M.D.,
London, E.C.4. Barrister-at-Law.

Amoebiasis in Italy

SIR,—Dr. Graham Hayward's interesting article on amoebiasis in Italy (Sept. 28, p. 457), which I have just studied in detail, raises several points of interest. The low incidence of bacillary dysentery (104 cases out of 4,601 admissions from June, 1944, to June, 1945) indicates highly successful preventive medicine such as could hardly be expected during the course of an operational campaign. With regard to amoebiasis he points out that in the Burma theatre and in India depressing results followed the standard courses of treatment in contrast to the disease in Italy. The reasons for such results in India and Burma were obvious to any officer who was engaged in the practice of medicine out there. While standard courses of treatment (consisting of emetine injections, E.B.I., "quinoxyl" (chiniofon), and carbarsone) were circulated to all medical units, E.B.I. was unobtainable in Assam and Burma during the whole of 1944 and 1945 while I was serving there. Nor was "quinoxyl" available in sufficient quantities. It is true that E.B.I. was used in certain base hospitals in India, but for cases of amoebiasis arising in the campaign none was obtainable at the front. Moreover, while I was serving in a large military hospital in India in 1943 for six months E.B.I. was not available. This state of affairs prevailed in spite of repeated reports of physicians who were responsible for the treatment of cases. I myself mentioned the deficiency in all my official reports and in personal conversation with high administrative officers. Nor could I discover any real reason why, at a time when emetine was being manufactured on a large scale from ipecacuanha, E.B.I. could not be manufactured in addition. I

mention these points because it is well known that relapsing cases of amoebiasis invalided to this country from India and Burma have frequently proved to be especially resistant to treatment.

As Dr. Hayward points out, the relapse rate has been high when repeated inadequate courses of treatment have been given. I regret that such was the state of affairs for the Burma theatre and to a great extent also in India where the usual courses consisted of injections, carbarsone, and "quinoxyl" retention enemata. It is of the utmost importance that no discredit should be associated with the work of medical officers in the Far East, often under the most severe handicaps on account of the deficiency of E.B.I., which was quite outside our control. Most of us were familiar with authoritative opinion on the treatment of amoebiasis before we ever embarked for the Far East.—I am, etc.,

Windsor. PHILIP H. WILLCOX.

Posterior Dislocation of the Shoulder

SIR,—Dr. A. McEwen Smith's account of a case of posterior dislocation of the shoulder joint (Nov. 9, p. 694) prompts me to emphasize a point in dealing with these cases which may be important. My experience is confined to three cases, but it is interesting that, of these, two should have been sent to me because reduction was unstable and one to a colleague for recurrent posterior dislocation.

The first patient had several reductions performed by various methods, and each time the joint was felt to click into position, but, as soon as the arm was brought across the chest, re-dislocation occurred. The posterior displacement was not appreciated at this time. When the patient came under my care six weeks had elapsed since injury, and the head of the humerus was plainly felt lying posterior to the glenoid. Reduction was accomplished, not without difficulty, and the arm was immobilized in plaster in ninety degrees abduction and external rotation with the elbow well back; this was the only position in which the joint was stable.

The second case, seen within a few days of injury, presented similar features, in that reduction was easily accomplished by traction in abduction, but re-displacement occurred as soon as the arm was brought into the position for a sling. A shoulder spica, with the arm in abduction and external rotation, was applied and worn for six weeks. Neither case had any associated fracture and both patients were young men. In both the functional result was good a few months later, and as far as is known neither developed a recurrent dislocation.

The early history of the third case was somewhat obscure, but it is certain that treatment was not by a plaster spica in the abducted position. The point to be remembered in treatment is that the position of the usual arm sling is the position of dislocation. Although reduction was apparently stable in Dr. Smith's case, the torn posterior joint capsule has been placed on the stretch during healing. Fortunately the sling was worn only for two days in this instance. In view of the apparently high incidence of recurrent dislocation following posterior displacement of the head of the humerus, it would be interesting to know the final result of Dr. Smith's case.—I am, etc.,

Ashby Parva. W. R. D. MITCHELL.

Lacteal Duct Obstruction

SIR,—A possible cause of obstruction to the outflow of breast-milk, such as might lead to a breast abscess, is suggested by the following case.

A primipara, two months after childbirth, with lactation fully established, suddenly developed a painful swelling in the area of one sector of the breast. The nipples were of the depressed and furrowed type, and in the position on the nipple corresponding to the affected sector of breast was what appeared to be a blister the size of a pin-head. There was no obvious inflammation, nor before the swelling arose had there been any pain on suckling. Massage of the breast, compression of the lacteal sinuses, and the use of the breast-pump were all unsuccessful in overcoming the obstruction. When the "blister" was pricked six ounces of milk were easily expressed and the swelling disappeared.

The condition recurred twice in an adjacent sector of the same breast, a week and a fortnight later. On these occasions there was no obvious "blister," but careful examination with a high-powered hand lens showed a minute fluctuant area slightly paler than the rest of the nipple, and the same treatment was again successful. The obstructing membrane in each case seemed to be epithelium that had bridged over the furrow at the bottom of which the duct opened.

Had no active treatment been given it seems at least possible that breast abscesses might have resulted. Since on the last two occasions the cause of the obstruction was discovered only by careful search with a lens, one wonders whether this condition may possibly be the cause of breast abscesses more commonly than is realized.—I am, etc.,

Leyburn, Yorkshire. VERNON R. PICKLES.

Digital Traction

SIR,—Like Mr. E. G. Slesinger (Nov. 9, p. 709) I have used the method of nail traction in the treatment of fractured phalanges many years ago. When I was house-surgeon under Schnitzler in the years 1929–34 that method was one of the stock methods at that department (Wiedner Krankenhaus, Vienna). I am, however, unable to state what publication caused Schnitzler to use and to teach that method or when and where it might have been published first. Quite likely it was in *Guy's Hospital Reports* quoted by Slesinger. We too found it usually possible to perforate painlessly the free edge of the nail for our purpose.

The nail traction proved useful in many cases, but occasionally we observed one undesirable effect: under the continuous traction the nail loosened, and although by that time the fracture was sufficiently consolidated not to suffer any ill effect, the patients eventually lost the nail and had to put up with the discomfort of it after the original trouble caused by the fracture was got over.

I think that the very occasional occurrence of losing a nail should not necessarily lead to the method being discarded altogether, but I do think that it is well worth keeping the possibility mentioned in mind and perhaps forewarning the patient. In any case I thought it should be mentioned in this correspondence.—I am, etc.,

Gillingham. K. F. POLLACZEK.

Penicillin-Sulphathiazole Snuff for Nasal Sinusitis

SIR,—Like Dr. J. Ross Macmahon (Sept. 14, p. 403) I have had chronic nasal sinusitis for many years, and like him I have at long last found an effective remedy. Had I thought of penicillin-sulphathiazole powder earlier I should have been spared a very painful third operation which has left annoying sequelae.

The trouble began in 1929 probably provoked by surface diving in deep water. On one occasion water completely filled my sinuses and poured out as from a tap when I lent my head forward to dry my hair. By 1935 persistent catarrh led to investigation which revealed a chronic infection of the left antrum. Lipiodol instillation followed by *x* ray showed a grossly thickened lining membrane. An antrostomy was performed, but unfortunately closed over soon afterwards. Symptoms persisted and in 1936 the antrostomy was re-opened and enlarged by another E.N.T. surgeon. Lavage was advised and I did this daily with benefit. Crusts of pus blocked the opening whenever I desisted for a few days. In 1939 I met a third E.N.T. surgeon who assured me that lavage was out of date. He advised me to sniff up 1/2% ephedrine in normal saline. Performed daily this enabled the antrum to empty its contents completely about three-quarters of an hour after treatment, and thereafter it usually gave little or no trouble for the rest of the day. The discharge evacuated, however, remained purulent. Moreover the ephedrine solution itself soon became infected from the dropper—a tendency which is little publicized and the prevention of which requires special methods.

In 1945 I had a disastrous case of sepsis following a clean operation. I vowed that I would either get my nose put right or give up surgery. I repaired to the second E.N.T. surgeon and begged him to do something more for me. A Caldwell-Luc operation was accordingly performed. All went well for two days, then a severe infra-orbital neuritis began and continued to give me agonizing pain for nearly a month. I began to wonder whether it was ever going to cease. I feel myself lucky to be left with nothing more serious than some local hyperaesthesia. After this radical procedure the discharge dried up within 2 or 3 months. However, with the first cold it returned and persisted. It was then that I thought of penicillin-sulphathiazole powder. I had some prepared, 250 (later 2,500) units per gramme, and I sniffed a little up my left nostril every morning, with my head over to the left to encourage it to enter the antrum. I tipped a little on to the back of my hand, avoiding

contamination of the contents of the bottle. The results of this simple procedure were a great improvement on lavage or ephedrine. The discharge soon became clear and then decreased in amount. After a while I stopped treatment, but the infection recurred within a few days, and this experience has been repeated on a number of occasions. My wife knows at once when I have not been taking my "snuff" regularly because the smell of the infection returns quickly. This presumably means that the infection is being controlled rather than eliminated. I therefore intend to try taking the snuff twelve-hourly. I shall also test the effect of four daily injections of half a million units of penicillin which Macmahon found effective.

In commenting on the effectiveness of this powder I must emphasize the lack of symptoms of hypersensitivity to the sulphathiazole after almost daily use for over two years. Perhaps I have been fortunate. I am not aware whether the nasal mucosa is as liable as the skin to develop sensitivity. I must add that I have tried this snuff upon a relative who has chronic sinusitis. It was without effect, probably owing to lack of drainage. However, in cases where permanent drainage has been secured I feel confident in recommending trial of this remedy, especially to my surgical colleagues to whom—and to whose patients—this disease is such a curse.—I am, with your permission, writing as—

A SURGEON WITH SINUSITIS.

Clicking Ears

SIR,—The case of clicking noises in the ears reported by Dr. Elliott Emanuel (Nov. 2, p. 652) prompts me to describe a similar case I saw in a Service general hospital in England in 1941.

The patient, a British soldier 21 years of age, was evacuated from Dunkirk nine months previously. He complained of a noise in his right ear which he said was like an alarm clock ticking. True enough a noise, like enough to an alarm clock, could be heard at a distance of two to three feet (60 to 90 cm.) away from the right ear. The noise could also be heard, a little more distinctly, from the front of the patient if he allowed the mouth to open slightly. Wide opening of the mouth, or the use of the tongue depressor, abolished the noise; the tickings recurred on closing the mouth again. No movement of the drumhead was to be seen. There was no defect of hearing. The Eustachian tubes were patent. Clonic movements of the soft palate were seen through the slightly opened mouth. These clonic movements were synchronous with the ticking noises. The clonic movements were abolished by wide opening of the mouth or by the use of the tongue depressor.

The absence of any movement of the drumhead is against the theory that the sound is due to the effect of contraction of the *tensor tympani* muscle on the drumhead. The sound is probably originated at the mouth of the Eustachian tube caused by the spasmodic opening of its lips.—I am, etc.,

Liverpool. G. A. MOULDEN.

"Cord Round the Neck"

SIR,—I wish to confirm Dr. L. R. C. Agnew's observation concerning the significance of the advance and retreat of the caput at the end of the second stage of labour. The time comes when one expects the head to be born with the next pain. The pain comes, but the caput advances no more than it did with the previous pains. Then the pain passes and the caput, instead of remaining at the vulva, passes back into the vagina. It appears to recede from one to two inches (2.5–5 cm.).

Many years ago when attending such a case the nurse said to me, "I bet the cord is around the neck." I took the hint and delivered with forceps. The cord was round the neck. It was with pardonable pride the nurse said, "I was right, doctor. I have often noticed it before." I have often noticed it since. It also occurs with a short cord, but then a cord round the neck is also a "short" cord. In these circumstances it is easy to understand how a baby can be born dead. With a contraction the length of the uterus shortens and the baby's head is able to descend until the cord is fully stretched. It can advance no further. When the pain passes off, the uterus relaxes and pulls upon the cord; the cord in turn pulls the baby back into the vagina. If the cord is short there is little risk to the baby, but if the cord is round the neck then that portion which is round the neck, is gradually tightened and may not relax. So the circulation is reduced or finally stopped.

When, in an apparently normal case, the head advances and retreats as described, I consider that the diagnosis of cord round the neck rather than short cord should be made, and the baby should be delivered at once. To wait for foetal heart signs may prove to be too late. If the cord cannot be released at once by the usual methods it should be cut between forceps—not between ligatures, as time is precious to the baby.—I am, etc.,

Clones. M. G. KIERANS.

SIR,—While we were very interested to read the letter from Dr. L. R. C. Agnew (Nov. 2, p. 668) describing his case of "cord round the neck," we do not agree with his treatment. We feel that time does not allow for the difficult procedure of ligaturing and dividing the cord *in situ*. Under the circumstances he describes we prefer to perform a monolateral episiotomy straight away under light ether anaesthesia, reinforcing it with a few drops of chloroform for the more resistant patient. If she has not delivered herself by the time the forceps are sterilized, we proceed to instrumental delivery, severing the cord en route as need be. If the child is not breathing, we give, simultaneously with the artificial respiration, half an ampoule of "coramine" (nikethamide) direct into the heart, and the remainder of the ampoule goes into the muscles of the thigh.

It is surely not necessary to attempt the refinement of diagnosis of "cord round the neck," nor to attempt the difficult procedure of cord ligature and severance *in situ*; in any case if this is done forceps should be applied immediately afterwards. Time, even to seconds, is the governing factor in the production of a live baby, and when the modern midwife sends in these circumstances, we know we have to get on with the delivery without delay. The modern midwife expects results too.—We are, etc.,

E. LEWIS BUTLER.
Birmingham, 23. SARAH BUTLER.

Work of the Government Lymph Establishment

SIR,—In your issue of Oct. 26 there occurs an article on the "Work of the Government Lymph Establishment from July, 1898, to June, 1946" by my ex-colleague Dr. Fremlin who retired from the active staff in 1930. From that date until his untimely death in November, 1945, Lieut.-Col. Stevenson, C.I.E., was solely responsible for the Establishment and was ably assisted throughout by Dr. Butler, M.B.E., who carried on until lymph manufacture by the Government was finally abandoned at the end of June, 1946. Stevenson and Butler held office at the most critical period in the history of the establishment, and to them alone belongs the credit for the maintenance of supplies in 1939–46.—I am, etc.,

Ministry of Health, S.W. J. R. HUTCHINSON.

Medical Research under "Field" Conditions

SIR,—There is a growing tendency in medical research nowadays to investigate disease either in the laboratory or on the patient in hospital. It would seem, therefore, that little or no attention is being paid to the influence of environment upon disease.

The veterinary surgeons have, for some years, been aware of the influence of environment upon disease and have made intensive studies of animal disease under "field" conditions. I would suggest, therefore, that we extend our activities beyond the two compartments now used—namely laboratory and clinical pathology—and develop a new branch of "field" investigation of disease in the patients' own homes, in their workshops, in their offices—in fact under conditions approaching as near as possible to the environmental normal.—I am, etc.,

Runcorn, Cheshire. JOHN H. HANNAN.

The Council of the Royal Institute of Public Health and Hygiene has sent to the Press a tribute to the Corporation of the County Borough of Croydon, to the chief officers concerned—the M.O.H. (Dr. Oscar M. Holden) and the borough engineer and surveyor—and to the superintendents of the Corporation's hospitals, for their magnanimity in accepting for practical instruction a large number of doctors during their training at the Institute for the D.P.H.

Obituary

ARNOLD LYNDON, O.B.E., M.D.

Vice-President, British Medical Association

The death of Dr. Arnold Lyndon, which took place on Nov. 14, in his 86th year, removes from the British Medical Association a prominent member who inspired much affection among his colleagues and who would, but for ill health, have taken even a higher place in its central affairs. He was at one time Deputy Chairman of the Representative Body, but had to withdraw from offering himself for re-election.

Arnold Lyndon qualified in 1885. His student career was highly successful. He took first-class honours in materia medica in the Intermediate Examination in Medicine of the University of London in 1884. In 1888 he took the M.D. After serving as house-surgeon and ophthalmic house-surgeon at St. Bartholomew's, where he had won the Brackenbury Surgical Scholarship, and as house-surgeon at the Royal Orthopaedic Hospital, he settled in practice at Hindhead on the border of Surrey and Hampshire, where he built up a high reputation as a general practitioner. He was also consulting medical officer to the Haslemere and District Hospital and an insurance practitioner for the Surrey and Hampshire panels. He threw himself into many local activities, being specially interested in the educational museum at Haslemere, formerly maintained by Sir Jonathan Hutchinson and now a Hutchinson memorial. During the war of 1914–18 he was medical officer and organizer of the Grayshott Auxiliary Hospital, Hindhead, and for his work there he received the O.B.E. In a wider field one of his great interests was Epsom College, of the Council of which he was a member for many years, and he was an earnest propagandist on behalf of that charity. While resident at St. Bartholomew's he had been an enthusiastic member and at one time President of the Abernethian Society. He was an active member of the Medical Defence Union, for many years a councillor, and also a member of the Standing Joint Committee of the Union and the London and Counties Medical Protection Society.

Arnold Lyndon's work for the British Medical Association began in the Surrey Branch, of which he was president in 1922, and honorary secretary for eight years. He had also been joint honorary secretary of the Guildford Division. He was in the best sense of the word a "local man," always keenly interested in the peripheral organization of the Association, with an eye for its weaknesses and its potential strength. Nothing pleased him more, while a member of the Organization Committee, than to analyse the figures of membership of the Divisions and Branches and to strengthen the local organization wherever it showed signs of weakness. He became a representative in 1920 and so remained, with one intermission, until 1931. It was in 1927 that he was elected Deputy Chairman of the Representative Body, and he served in that capacity until 1929.

A position in which he displayed exceptional zeal and ability was as chairman of the Ethical Committee, where his skill in the adjustment of the personal difficulties which often come before that committee was well exemplified. In 1931, on his retirement from the chairmanship of his Local Panel Committee, which he had held for 19 years, and from the honorary secretaryship of the Surrey Branch, Dr. Lyndon was presented with a handsome silver rose bowl and a cheque subscribed for by his colleagues. The testimonial expressed the sense of his unfailing courtesy and suavity, and these were his outstanding characteristics. His membership of the Council extended from 1922 to 1935, and during that time his principal work was done on the Ethical and Organization Committees. On the latter he was chairman of the Grants Subcommittee, a work after his own heart, and he seemed to have at his fingers' ends the necessary particulars with regard to all the Branches and Divisions in the kingdom. Other committees on which he served for shorter periods were the Journal Committee, the Finance Committee, the Public Health Committee, and the Committee on the Peripheral Organization of the Association. The Charities Committee enlisted his special interest, and here his long experience of Epsom College was of great value.

N. E. W. writes:

The present generation of practitioners in Surrey can have little knowledge of the amount of work Lyndon put in on their behalf. He held every position in the Division, on the Branch Council, and on the Local Medical and Panel Committee in which he could render service to his colleagues. His wisdom and experience were recognized by all, and he seldom had any difficulty in bringing a meeting round to his point of view. No slipshod or ambiguous resolutions ever got past Lyndon. He always insisted on the decision of a meeting being expressed in precise and unequivocal terms. Ill health prevented him from continuing all his activities, but he remained treasurer of the County Local Medical Committee to the end, and attended a meeting as recently as two months ago. His particular interest was the benevolent side of the work of the committee, and he was their trusted adviser as to how the considerable sum raised for charitable purposes should be distributed. Others will have written of Lyndon's many other activities, but it is fitting that Surrey should pay a tribute to Arnold Lyndon and express its gratitude for the services he rendered.

HARRY ROBERTS, L.M.S.S.A.

The death of Dr. Harry Roberts on Nov. 12 has taken away a man of uncommon talents, with a personality all his own. He was a good doctor to countless poor people, a clear thinker who wrote very well on many topics, a stimulating companion, and a loyal friend. He was a practising sociologist long before "medical sociology" was spoken of or "social medicine" received a name. His gift for arranging the week's work enabled him to put every hour to the best use and to combine the life of a busy East End practitioner with authorship of high quality, the pursuit of many intellectual tastes, and the cultivation of his garden and orchard.

Harry Roberts came of West Country yeoman stock. He was born at Bishop's Lydeard, Somerset, on Sept. 30, 1871, and was educated at Queen's College, Taunton, at University College, Bristol, and at St. Mary's Hospital, London, and qualified in 1895. After a few months spent in teaching elementary science he began work as a general practitioner in Cornwall; but, though he loved the countryside and liked driving about behind a horse, the mental stagnation of the neighbourhood was more than he could bear. So he came to London, not, however, to practise in the centre or the West End, where he could rub shoulders with educated people every day, but to put up his plate in Stepney, at a good house amid the enveloping slums. In 1909, when this East End practice was being built up on novel lines, Neil Lyons wrote a book about it called *Sixpenny Pieces*, which in a rather jaunty and florid way took Harry Roberts as the central figure ("Dr. Brink") for a series of vignettes of life in a very poor and rough quarter of London before the coming of the National Insurance Act. The work went on after 1912 and the practice grew, the senior partner spending many week-ends away from 63 Harford Street at his country house at Hawkley, near Liss in Hampshire, where he read and wrote and gardened and talked with congenial friends. Some seventeen years ago, when Roberts was still actively running his well-organized treatment centre, the firm came into collision with the London Insurance Committee on a charge of "excessive prescribing"; they were fined £100 notwithstanding tributes from the referees to the admirable ideals of the four doctors and the "high efficiency of the treatment given by them in a poverty-stricken neighbourhood." The case dragged on and Roberts fought it with persistence and skill in argument. The Minister upheld the penalty, but those who knew what Harry Roberts was doing for the poor of Stepney felt that justice had not been done—far from it.

He was a frequent contributor to the leading reviews and occasionally wrote for medical journals. Many of his social, political, and philosophical articles reappeared in book form. He also published books on the history and practice of gardening and on everyday hygiene and psychology.

Dr. GEORGE ALEXANDER WILLIAMSON, who has died in retirement, twice held office at Annual Meetings of the B.M.A.—as secretary of the Section of Tropical Medicine at Aberdeen in 1914, and as vice-president of the Section of Services and Tropical Medicine at Aberdeen in 1939. He was born at

Inverness in 1871, son of Alexander Williamson, J.P., and was educated at the Royal Academy and College, Inverness, and at Aberdeen University, graduating M.A. in 1889, M.B., C.M. in 1893, and M.D. in 1899. He took the Liverpool D.T.M. in 1906 and the D.P.H. of Aberdeen (with honours) in 1910, and received the Certificate (with distinction) of the Liverpool School of Tropical Medicine. After holding house posts at Elgin and Inverness he became District M.O. for Cyprus in 1895, and retired from the Colonial Medical Service in 1911. Returning to Scotland he became lecturer in tropical medicine at Aberdeen University, and during the war of 1914–18 served with the Egyptian Expeditionary Force with the rank of major, R.A.M.C.(T.A.), and was mentioned in dispatches. Dr. Williamson published several papers on tropical diseases and had been medical officer and lecturer on hygiene at the Aberdeen Training Centre under the National Committee for Training of Teachers.

We regret to announce the death of Dr. ANDREW BROWN MURRAY, of Banff, who had been chairman of the Banff, Moray, and Nairn Division of the B.M.A. and represented it at ten Annual Meetings; he was also president of the Northern Counties of Scotland Branch in 1938–9. Dr. Murray studied medicine at the University of Glasgow, graduating M.B., C.M. in 1897, and was then in turn house-surgeon and house-physician at Greenock Royal Infirmary and Fever Hospital, and assistant medical officer to the Metropolitan Asylums Board. Settling in practice in the north of Scotland, he became medical officer of the parish of Banff and Boyndie, and visiting physician to Chalmers' Hospital, Banff. He had been Provost of the Royal Borough of Banff, and J.P. for the county since 1919. He was at one time a keen Territorial officer, reaching the rank of major, R.A.M.C.(T.A.), and receiving the Territorial Decoration. He was also vice-president of the Banffshire Field Club and a member of the County Education Authority for some years.

Dr. HUGH DAVENPORT LEDWARD, who died on Oct. 19 after several years of incapacity through illness, aged 68, was the son of the late H. D. Ledward of Bowdon, Cheshire, in which town he went to school. Thence he entered Trinity College, Cambridge, where he was placed in the First Class of the Natural Science Tripos in 1899. The following year he gained the University Scholarship at St. Bartholomew's Hospital, London, and qualified M.R.C.S., L.R.C.P., in 1902, becoming M.B., B.Ch.Camb. a year later. He was house-surgeon to Sir D'Arcy Power at that same hospital, and house-physician at the Brompton Chest Hospital. When Letchworth Garden City was in its infancy he settled there in partnership with Dr. Norman Macfadyen, and remained there from 1905 until his retirement for health reasons in 1936. In 1916–18 he served in the R.A.M.C. with the 60th General Hospital at Salonika and elsewhere. To all his friends he was endeared by a modest, quiet disposition which by no means prevented widespread recognition of his professional abilities at Letchworth, where he is still affectionately remembered. In 1910 he married Miss Lilian Grace Gibb, who survives him: their only daughter died in childhood; their son is Dr. A. D. Ledward, now practising at Sandwich after service during the recent war. Dr. Ledward joined the British Medical Association in 1908; he was secretary of the Section of Medical Sociology at the Annual Meeting of 1913, and chairman of the East Herts Division, 1922–3. He was a member of the Representative Body in 1912 and 1913.

We regret to announce the death of Col. GEORGE A. TROUP, M.D., C.M., D.P.H., on Oct. 24, at his native village of Rhynie, Aberdeenshire, where he and a brother had resided together in recent years. He was educated at Gordons College, Aberdeen, and after graduating in medicine at the University there joined his cousin, the late Dr. P. J. S. Nicoll, in 1894 in private practice at Romford Road, Stratford, London. Later, in addition he was appointed a consulting physician at Queen Mary's Hospital for the East End, which position he held for many years. After the death of his partner in 1926 Dr. Troup lived for a time at Wanstead, but later moved to Loughton in Essex. It was soon after his complete retirement from practice in 1940 that he took up residence in Rhynie where, as a Trustee of the Nicoll Hospital in particular, but in other matters of local interest too, he found pleasure and interest in affording help and guidance. Col. G. A. Troup, T.D., served in the R.A.M.C. in Gallipoli and Palestine with distinction, was mentioned in dispatches, and became an A.D.M.S. He was appointed a Deputy Lieutenant for the County of Essex, and it is believed that his interest and work for the Territorial Association subsequent to the War of 1914–18 led to his receiving that appointment, which, however, he resigned on leaving the county for Scotland. He had a kindly disposition and was held in very high esteem by his patients and fellow medical practitioners, and it is known too that during his long career in the Army Medical Service he held the confidence of those with whom he served.—A.L.

Surg. Lieut.-Cmdr. W. F. VIRET, D.S.C., who was demobilized in December, 1945, died at Bradford on Oct. 23 after a short illness. He had served in the Royal Navy for 10 years. The second son of the late Dr. B. P. Viret, of Bradford, he was 36 years of age and had been educated at Bradford Grammar School, Leeds University, and University College Hospital, London. He qualified in 1935 and entered the Navy after a period spent as house-physician at Leeds General Infirmary. During the early part of his naval career he served on a river gunboat on the China station and in the recent war he was first attached to a destroyer engaged in the Channel patrol. Later he went to the Mediterranean as Surg. Lieut.-Cmdr. in the cruiser H.M.S. *Aurora* and saw a great deal of active warfare. In 1944 he was awarded the Distinguished Service Cross for conspicuous bravery and devotion to duty. After demobilization in 1945 he went into practice with his brother and sister-in-law (Drs. R. P. and Elizabeth Viret) at Shipley, Yorks. In 1940 he married Penelope Mary Downes and had a son and a daughter. A colleague writes: Wilfrid Viret was a man of sterling character, wide sympathies, and sound judgment. He was vigorous in mind and body and therefore it is all the more tragic that he should have been struck down by a sudden, fulminating infection. The country can ill afford to lose a man so devoted as he was to his profession, his patients, and his family.

Dr. JOHN SOUTTAR MCKENDRICK, who died on Oct. 31, held office as President of the Royal Faculty of Physicians and Surgeons of Glasgow in 1939–40. He was born on March 5, 1874, son of John Gray McKendrick, emeritus professor of physiology in Glasgow University. From Kelvinside Academy he entered the University in 1891 and graduated M.B., C.M.Glasg. with high commendation in 1896, proceeding M.D. with first-class honours and the University gold medal three years later. He was elected F.R.F.P.S. in 1902 after holding resident posts at the Western Infirmary, where subsequently he served as a member of the visiting medical staff for many years. In the early part of his career Dr. McKendrick was assistant to the professor of medicine, Sir Thomas McCall Anderson, and assistant lecturer in practical physiology in Glasgow University under his father. During the war of 1914–18 he was physician to Bellahouston Red Cross Hospital. The Royal Society of Edinburgh elected him a Fellow in 1900, and he was a member of the Association of Physicians of Great Britain and Ireland. He contributed papers, mainly on clinical subjects, to this and other medical journals. He had been a member of the British Medical Association for 42 years.

It will be difficult (writes K. P. H.) for the non-official medical fraternity of Assam to become accustomed to the fact that FREDERICK MCCOMBIE, who died in Shillong at the end of July, is no longer with us. He was, without any question, the doyen of the profession here, having spent the whole of his working life in Assam and having been accorded every honour possible to a non-official. He qualified M.B.Lond. in 1904 after a brilliant career at King's College, which he entered with a Clothworkers' School Exhibition, and immediately came out to India as assistant to Dr. Gregerson of Tinsukia, Assam. Within a very short time he had shown his scientific interest in tropical medicine by publishing a paper in 1906 on the then almost unknown method of treatment of cholera by saline injections. On his chief's death (he was murdered by the Abors when on a hunting expedition) he succeeded to the practice and remained in the area for the rest of his life. In 1912 he became B.S.Lond. and M.R.C.S., L.R.C.P., and took his M.D. in tropical medicine and the D.T.M.&H. of Cambridge. About this time he helped to found the Assam Branch of the B.M.A., in which he took an interest to the very end. He was President of the Branch on many occasions, his last period of office being during the year 1944, and chairman of the Assam Valley Division on even more. His happiest moments were probably those when he was associated with his colleagues at meetings of the Association, where his sane and sound counsel was always sought. He was also for many years a keen member of the Assam Valley Light Horse, being promoted to the rank of Lieut.-Col. and receiving the Volunteer Decoration. The confidence placed in him by his fellows was shown by his membership over a long period of the Assam Medical Council, of which he was an elected member. "Freddie" never married, but many in Assam will mourn his loss. He never spared himself to help his younger colleagues and he salted any criticism with his typical dry humour. He was what he wanted everyone else to be—a good B.M.A. man—and Assam will not know his like again.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation held on Nov. 2 the following medical degrees were conferred:

M.D.—M. A. Rushton.
M.B., B.Chir.—J. W. Ker (by proxy).

UNIVERSITY OF LONDON

The title of Professor of Morbid Anatomy and Histology in the University of London has been conferred on Dr. Robert Wilfred Scarff in respect of his post at Middlesex Hospital Medical School, as from April 1, 1946.

Pathological appointments held for at least six months in the laboratories of the public health service at Colindale, Cambridge, Oxford, and Cardiff have been approved for the purposes of admission to the M.D. examination, Branch II (Pathology), but the matter will be further considered in the session 1950–1.

The University of London Conservative and Unionist Graduates Association is reorganizing after seven years of suspension and will hold its first post-war general meeting at King's College, Strand, W.C., on Saturday, Nov. 30, at 11 a.m. Mr. R. D. Milne, M.A., 15, Avenue Road, Highgate, N.6, is acting hon. secretary until a new appointment is made.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council on Nov. 8 the following appointments were made: *Lecturer in Pharmacology*, D. R. Wood, B.M., B.Ch.; *Research Fellow and Tutor in Therapeutics*, J. F. Goodwin, M.D., F.R.C.P.; *Research Assistant in Medicine*, Margaret H. Miller, M.B., Ch.B.; *Demonstrator in Pathology*, J. D. Hopewell, M.B., Ch.B.; *Part-time Demonstrator in Physiology*, Ursula S. Gray, M.B., Ch.B.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Sir Arthur MacNalty, K.C.B., D.M., will deliver the FitzPatrick Lectures on Tuesday, Dec. 10, and Thursday, Dec. 12, at 5 p.m., at the College. Subject: "The History of State Medicine in England." (1) From the Accession of Queen Victoria to the General Board of Health. (2) The Medical Department of the Privy Council.

At a quarterly comitia of the College, held on Oct. 31, with the President, Lord Moran, in the chair, Sir Archibald Gray, Dr. Macdonald Critchley, Sir Lionel Whitby, Prof. A. A. Moncrieff, and Dr. Janet Aitken were elected Councillors.

It was agreed that an International Congress of Medicine should be held in Sept., 1947.

It was also decided that there should be an organization of the Members of the College with provision for meetings and the election of two representative Members to serve on the Council.

Reports were received and approved from the Paediatric Committee and the Committee on Dermatology.

On the nomination of the Council the following were elected representatives of the College: Dr. C. M. Hinds Howell on the committee of management of the Conjoint Board; Dr. F. S. Langmead on the Central Midwives Board; and on the Standing Joint Committee of the three Royal Colleges, the President, Sir Leonard Parsons, Dr. H. E. A. Boldero, Dr. W. G. Barnard, and Sir Allen Daley. Dr. C. M. Hinds Howell, Dr. M. E. Shaw, Dr. J. B. Harman, and Dr. J. C. Hawksley were elected representatives on the Committee of Reference, and Dr. Hinds Howell and Dr. Harman on the Central Medical War Committee. Dr. John Parkinson was elected the representative of the College on the committee of management of the Canadian Red Cross Memorial Hospital, Taplow.

It was announced that Prof. G. Selby Wilson had been appointed Milroy Lecturer for 1948, his subject being "The History, Design, and Purpose of the National Public Health Laboratory Service."

Mr. Francis M. Stent was appointed secretary of the Examining Board.

The following, having satisfied the Censors' Board, were elected Members of the College:

R. R. Andrew, M.D., B. Antonious Boctor, M.B., Major J. P. Baird, M.B., R.A.M.C., Margaret R. Becklake, M.B., J. F. Bolton Carter, M.B., A. S. V. Burgen, M.B., A. D. Charters, M.D., S. Chaudhuri, M.B., C. J. M. Clark, M.B., P. Corridan, M.B., P. J. N. Cox, B.M., W. S. McR. Craig, M.D., J. P. Crawford, L.R.C.P., F. E. Crawley, M.D., F. W. Dickson, M.B., K. W. Donald, M.D., R. G. Evans, M.B., Mary Farquharson, M.B., R. Fletcher, M.B., S. Grieve, M.B., L. G. Hannah, M.B., J. N. Harris-Jones, M.B., A. R. Harrison, M.B., B. E. Heard, M.B., M. S. R. Hutt, M.B., R. J. Isaac, L.R.C.P., A. H. James, B.M., B. Lees, L.R.C.P., M. I. Levin, M.B., R. B. Lucas, M.D., J. Luder, M.B., Fl. Lieut. D. H. Makinson, M.M., R.A.F.V.R., R. B. Martin, M.D., Lieut.-Col. A. N. T. Meneces, M.B., R.A.M.C., G. El D. Nor el Din, M.D., B. D. Patel, M.B., P. D. Samman, M.B., I. Schrire, M.B., Esther E. Simpson, M.B., Jean V. Simpson, M.B., A. J. Singh, M.D., B. C. Sinha, M.B., Y. G. Sofer, M.B., G. S. C. Sowry, M.B., C. A. Storr, M.B., G. B. Stratton, L.R.C.P., W. St. C. Symmers, M.B., M. Symons, M.B., R. B. Terry, M.B., A. J. Thomas, M.B., J. Vallance-Owen, M.B., C. E. Van Rooyen, M.D. (*in absentia*), R. P. Warin, M.D., A. G. W. Whitfield, M.B., A. W. Williams, M.D., D. I. Williams, M.B., G. M. Wilson, M.B., L. Wolman, M.B., C. Zahra Neumann, M.D.

Licences to practice were conferred upon the following 114 candidates (including 22 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the necessary by-laws of the College:

Ruth Ainsworth, T. W. Backhouse, W. O. Backus, P. T. Ballantyne, P. J. Banks, B. W. Barras, J. H. Beatson, R. W. Bell, P. L. Berger, P. G. Bevan, I. A. Blackmore, R. W. Booth, R. W. A. Bottoms, W. I. H. Bourne, L. W. Bowen, P. A. Boxall, T. Brandl, D. S. N. Brierley, F. B. Briggs, M. H. Brook, Brenda M. Buck, P. J. Burdon, Yvonne B. Capon, Sybil C. Capper-Johnson, P. J. Chapman, Patricia Chiopindale, H. E. Christensen, L. W. Clarke, P. W. Clements, R. A. Cocks, J. F. Cogan, W. A. D. Combe, A. T. Cook, D. C. Cooke, H. S. Coulsting, Mary Creevey, T. Crisp, D. W. J. Cullingford, H. Dasch, A. J. A. Dawes, R. A. Daws, K. R. Dempster, R. D. Eastham, W. McC. Edgar, G. B. Elliott, Kathleen A. Elliott, Audrey T. Evans, I. A. Fainer, J. Fairlee, Joyce Faulkner, M. E. Fearnley, E. C. Flemin, L. Ford, R. H. Fox, H. H. Frank, Margaret A. Gee, J. H. H. Gibbon, A. W. Golfman, Jean F. Gordon, W. V. Graham, G. J. Hadfield, A. A. Hall, P. S. Hall, J. L. Harris, J. B. Hearn, Erica W. Higgens, A. H. Hollings, K. D. Hopkirk, P. K. Hopper, R. F. H. Horn, B. B. Jakeman, J. L. Jenman, Gwyneth M. V. Johns, R. I. Johns, F. D. Kay, I. A. Kellock, R. H. Lake, B. H. Lees, J. R. Leslie, H. M. Lyons, H. G. Mather, D. McI. Maxwell, P. R. H. Molesworth, Nesta G. Morgan, G. O. Morse, J. E. Owen, Sheila M. Parker, Alice M. Pendrill, J. H. S. Perrett, T. L. Pilkington, N. C. D. Pizey, P. N. Porritt, Eva M. Raybould, B. F. Richards, D. A. Richards, Betty Scotter, S. Silbermann, M. Silverberg, J. P. A. M. Skene, Gwendolen D. Smith, Margaret T. Smith, Patricia E. Smith, M. J. Squires, B. H. Storey, M. Strode, W. Wagland, H. Walters, L. G. R. Wand, G. B. B. White, A. MacR. Whittington, K. Ll. Williams, P. H. Williams, T. B. Williamson, Audrey J. Worman.

Diplomas in Ophthalmic Medicine and Surgery, in Tropical Medicine and Hygiene, and in Physical Medicine were granted, jointly with the Royal College of Surgeons of England, to the successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of Oct. 26 (p. 630).

Diplomas in Child Health were granted, jointly with the Royal College of Surgeons of England, to the successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of Oct. 26 (p. 630) and to H. G. Farquhar, E. Kahn, Margaret Munro, and A. M. Young.

Diplomas in Medical Radiotherapy and in Medical Radio-Diagnosis were granted, jointly with the Royal College of Surgeons of England, to the following successful candidates:

MEDICAL RADIOTHERAPY.—S. Curwen, R. F. Hendtlass, C. L. Lewis, T. McK. Robb, W. R. Ward.

MEDICAL RADIO-DIAGNOSIS.—J. Aspin, R. F. Ashwin, A. T. Aylmer, W. M. Forster, S. Haase, H. A. R. Hamilton, W. S. Holden, F. L. Ingram, S. J. Johnson, A. M. Jones, D. R. Maitland, J. H. Middlemiss, K. D. F. Morle, E. H. Mucklow, C. Pickard, R. A. Reynolds, W. H. T. Shepherd, T. Stephanides, G. H. Thomas, M. R. Tomlinson, H. J. Trenchard, P. Watts, W. J. R. Wyness.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A Commonwealth Travelling Professorship

The following announcement was made by the President, Sir Alfred Webb-Johnson, at the Buckston Browne Dinner at the Royal College of Surgeons on Nov. 14:

A prominent New Zealand industrialist has made an anonymous gift to the Royal College of Surgeons of England for the endowment of a Commonwealth Travelling Professorship. The endowment will provide an income of about £2,000 a year, and the benefaction is to be known as a gift from "A New Zealand Family." A Commonwealth Professor will be appointed each year and will generally be a prominent physician, surgeon, or scientific worker resident in Great Britain or in Australia or New Zealand. The appointing authorities are also empowered, however, to elect as a professor a distinguished teacher from one of the other Dominions. The professor will be required to travel from the country where he or she is ordinarily resident to Great Britain, or to Australia and New Zealand, and to any other Dominion of the British Commonwealth, for the purpose of assisting in the advancement of medical science either by lecturing, teaching, or engaging in research. It is hoped that the institution of this professorship will not only lead to the establishment of closer links between scientific workers in the Dominions and in the older seats of learning and centres of research, but that the people of all nations will benefit. It is also hoped that it will be an important contribution to Imperial unity.

General Annual Report

The general annual report for the year ending July 31, 1946, has been printed for the Council and gives a record of the work of the College in its various departments during that period. As was announced in the annual report for 1944, the Council is applying for a grant for a Supplemental Charter to enable the College to expand its activities and effect reforms in its administration. During the year 86 Fellows, 581 Members, and 98 Licentiates in Dental Surgery were admitted after passing the College examinations. Prof. F. Wood Jones assumed office as Sir William H. Collins Professor of Human and Comparative Anatomy at the beginning of 1946. The pathological specimens have been returned to the College, and the reorganization of the collection has been continued under Prof. R. A. Willis, the Sir William H. Collins Professor of Pathology. The return of evacuated books and the

re-equipment of the main book-stack, with its shelving, were completed early this year. The rearranging of the books returned from the country continues, and a start has been made with the repair and rebinding of the historical collections. Considerable success has been achieved in making good the gaps in wartime periodicals from America, France, and neutral countries. The return of the laboratories of the College from evacuation at Finchingfield, Essex, was completed in August, 1945, but the disturbance caused in the laboratories by war damage repairs and the urgent needs of the other scientific departments made necessary a further evacuation of the Department of Experimental Research, and the Bernhard Baron Professor and his staff obtained hospitality in the Department of Physiology at Cambridge. Since May, 1946, Prof. John Beattie has been in Germany as head of a group of workers who are investigating further the problem of famine oedema. The policy of the College to provide postgraduate education has been considerably expanded, and a course of 69 lectures on anatomy, applied physiology, and pathology was arranged for September–October, 1946. For the first time in the history of the College the assets stand at over one million pounds. A third grant of £100,000 from Sir William H. Collins was the principal increase of capital which has enabled the College to reach this notable point and to further the work of the scientific departments. The restoration fund stood at £141,000 on Aug. 1, 1946, including recent gifts from America, Australia, and New Zealand.

The Buckston Browne Dinner

At the annual dinner of Fellows and Members held at the College in Lincoln's Inn Fields, the President made the announcement printed above concerning the Commonwealth Travelling Professorship. He also read a message received from the King assuring the College of his interest in its many activities and saying that the new professorship should be of great benefit to medical science throughout the Commonwealth and Empire. In a letter on the same subject the Prime Minister wrote that one of the means by which the British peoples could remain in the foreground of medical science was by exchange of ideas and knowledge. Sir Alfred Webb-Johnson, in a general welcome to the guests, said that this was a domestic occasion endowed by Sir Buckston Browne, one of the best and most lovable of men and a great benefactor of the College. Addressing the Minister of Health he asked: "Can we get together and talk over the extraordinary activities of the Government and see if we can make sense of them?" And he told of a long visit paid by Mr. Aneurin Bevan to the College and the keen interest he showed in its work. The benefactions received by the College were a great inheritance for great ends. The work was already expanding in many directions, and in September of this year the attendances at lectures were no fewer than 9,000.

During the evening the Honorary Medal, instituted in 1802 and awarded only twenty times before, was handed by the President to Sir Alexander Fleming, F.R.C.S., whom Sir Heneage Ogilvie, Senior Vice-President, introduced in a felicitous speech. Replying to a toast to the guests Lord Addison, F.R.C.S., Secretary of State for Dominion Affairs, expressed his admiration for the enterprise now shown by the College and spoke of London's unique opportunity for postgraduate teaching. Mr. Bevan, who followed, said that he need not make a speech at this family affair, but he was impressed by the graceful symbolism of the New Zealand gift, which seemed to him even more important than its content, and he paid a tribute to Sir Alfred Webb-Johnson's great work for surgery and interest in young men. The High Commissioners for New Zealand and for Australia also replied to the toast.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting of the College, held on Nov. 5, with the President, Dr. D. M. Lyon, in the chair, Dr. A. MacA. Gillespie (Edinburgh), Dr. A. M. MacDonald (Edinburgh), Dr. R. A. Miller (Edinburgh), Dr. G. O. Horne (Edinburgh), Dr. R. J. Kellar (Edinburgh), Dr. G. D. Malcolm (Bridge of Earn, Perthshire), and Sir Andrew Davidson (Edinburgh) were introduced and took their seats as Fellows. Dr. H. J. Parish (Petts Wood, Kent), Dr. P. V. Pritchard (London), Dr. R. C. Wood (Edinburgh), Dr. P. N. Bardhan (Ferozepore, Punjab), Dr. H. M. D. Shepherd (Shanklin, I.o.W.), Dr. J. A. Malloch (Edinburgh), Capt. J. W. D. Goodall, I.M.S., Major J. Mackay-Dick, R.A.M.C., and Dr. D. M. Anderson (Braintree, Essex), were elected Fellows of the College.

Drs. A. Rabinowitz (Johannesburg), A. Brinks (Germiston, S.A.), W. Henderson (Edinburgh), J. H. D. Millar (Edinburgh), R. H. M. Ross (Darlington), L. S. Prasad (Bihar, India), N. S. Gordon (Edinburgh), G. H. Armitage (Cummock, Ayrshire), M. M. Whittet (Glasgow), Elizabeth M. Hislop (Edinburgh), and I. Wang (Edinburgh), were elected Members of the College.

The Cullen Prize, 1946, was awarded to Lieut.-Col. W. F. Harvey, C.I.E., F.R.C.P.Ed., I.M.S. (ret.). The Hill Pattison-Struthers bursaries in anatomy and physiology were awarded to M. C. Berenbaum and J. Jackson. The Hill Pattison-Struthers bursary in clinical medicine was awarded to Dr. J. L. Quartey-Vanderpuije.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The following candidates have been approved at the examination indicated:

DIPLOMA IN OBSTETRICS.—T. M. Abbas, J. S. Astbury, R. H. O. Bannerman, A. Barker, A. P. Bates, T. C. Beard, A. V. G. Bibby, J. M. Bowen, S. Burke, D. J. Burnett, Diana Butler, P. H. Cardew, T. E. A. Carr, Betty J. Clymo, C. K. Cole, N. K. Crooke, T. K. Davies, Ruth M. Dearing, Janet M. Done, Kathleen A. Drury, R. C. Dwyer, C. T. F. Ealand, W. S. R. Fenton, H. Flack, Mary Francis, W. K. Frewen, Kamel Girgis, Mary E. Goodson, A. H. Grenz, G. E. R. Hamilton, Emily G. Hamlyn, J. R. Hassan, Lore M. Hasslacher-Traub, J. J. Hayward, Mary A. Hewett, Monica M. Hogben, F. L. E. Hugh-Musgrove, E. D. Hull, G. A. Humphreys, J. B. Joyce, Christine Kirby, T. H. Lawton, Constance G. Lee, Joan M. Levett, Kathleen V. Lodge, E. L. Loewenthal, Alison J. McNairn, Kathleen M. A. Millard, V. V. Mohile, J. A. O'N. Mulcahy, N. J. S. Nathan, A. D. Newsholme, Rosalind M. L. Nicol, J. M. Norman, R. T. Norman, Rache Jacob, W. B. O'Brien, J. J. O'Donoghue, J. J. F. O'Sullivan, W. H. Phillipps, G. T. Pitts, G. E. Prendiville, R. W. K. Purser, Jean F. Ramsay, Mary J. Reading, J. S. Redfern, T. F. Redman, B. C. M. Reed, E. Ridehalgh, F. L. Robertshaw, T. W. Roddie, J. V. Rose, Helen M. Russell, H. E. Rutherford, Ll. C. Rutter, J. A. Sadler, J. C. T. Sanctuary, Eleanor M. Sawdon, K. B. Scott, H. N. Skelton, Margaret E. A. Slater, S. A. Swanson, J. M. Thomas, R. R. Trussell, C. M. F. Walters, P. de S. Wijesekera, D. M. Wilkins, J. Wills, B. W. Wood, M. R. Woods.

SOCIETY OF APOTHECARIES OF LONDON

On Thursday, Nov. 28, at 8 p.m., the Master, Wardens, and Court of the Society of Apothecaries of London will present the Society's gold medals in therapeutics to Sir Alexander Fleming and Sir Howard Florey in recognition of their work on penicillin. The presentation will be followed by a soirée for the members of the Society.

Medical News

Abstracts of World Medicine and *Abstracts of World Surgery, Obstetrics and Gynaecology* will make their first appearance in January, 1947. These two new journals are being published monthly by the British Medical Association, the first at an annual subscription of 3 guineas and the second at 2 guineas. Applications for subscription should be sent to: The Publishing Manager, *British Medical Journal*, B.M.A. House, Tavistock Square, London, W.C.1.

The Family Planning Association (69, Eccleston Square, London, S.W.1) has arranged a Medical Conference to be held at Gas Industry House, Hyde Park Corner, S.W., on Sunday, Nov. 24, at 10.30 a.m., when medical officers from a county council and from a borough council will open a discussion on "The Experience of some Local Authorities in providing contraceptive advice within the terms of the Ministry of Health Memoranda"; this will be followed by a discussion on "Clinical Problems in Contraceptive Technique and the Atypical Case." At 2.30 p.m. "Developments in the treatment of Sub-Fertility and their application to Clinics" will be discussed. A film, made in the United States, entitled "Studies in Human Fertility" will be shown at the end of the conference.

The Medical Society for the Study of Venereal Diseases will hold a general meeting at 11, Chandos Street, Cavendish Square, London, W.1, on Nov. 30, at 2.30 p.m. Dr. J. A. W. McCluskie will give an address on "Cardiovascular Syphilis."

The Edinburgh University Club of London has arranged to hold a reception at the May Fair Hotel, London, on Thursday, Dec. 5, 6.30 to 8 p.m., in honour of the Principal, Sir John Fraser, Bt., and Lady Fraser. Any member who has not received a notice by Nov. 25 is requested to get in touch with the Hon. Secretary at 12, Wimpole Street, London, W.1.

A meeting of the Scottish Group of the Association of Industrial Medical Officers will be held at the Institute of Hygiene, University of Glasgow, on Wednesday, Dec. 11, at 3 p.m., when there will be a symposium on "Occupational Medicine" by Prof. T. Ferguson and assistants. All medical practitioners interested are invited to attend.

At a meeting of the court of directors of the Society for Relief of Widows and Orphans of Medical Men, held on Oct. 9, with Dr. R. A. Young, President, in the chair, the death of a member was reported and two new members were elected. The death was also announced of a widow who had received £1,261 in relief since 1932. The half-yearly accounts to June 30 which were presented showed that £1,940 had been given to widows. It was reported that the widow of a member had applied for relief and a yearly grant of £60 was voted. It was decided to make a Christmas present to the widows. A donation of £31 5s. was received from the Bovril Medical Agency. Members who have been demobilized should send their new addresses to the secretary, as until they have paid the arrears of subscriptions their membership is suspended. Membership is open to any registered medical man who, at the time of his election, is residing within a twenty-mile radius of Charing Cross. Relief is granted only to the widows or ophans of deceased members. Full particulars may be obtained from the secretary of the society at 11, Chandos Street, Cavendish Square, W.1.

The London Irish Medical Golf Society will hold its annual general meeting and dinner at the Charing Cross Hotel on Thursday, Nov. 28, at 7.30 p.m.

The opening of the Dublin office of Burroughs Wellcome and Co. at 18, Merrion Square was celebrated on Nov. 12 by a dinner attended by the Lord Mayor of Dublin and by leading members of the medical, dental, veterinary, and pharmaceutical professions. It was presided over by Mr. Leslie G. Matthews, who said that the office was intended to place the scientific and technical resources of the Wellcome Foundation, Ltd., more readily at the disposal of the company's customers in Ireland. Dr. H. J. Parish (clinical research director of the Wellcome Foundation) welcomed his medical colleagues, who included Prof. J. W. Bigger (Dean of the Faculty of Physic, Dublin University), Prof. J. M. O'Connor (Dean of the Faculty of Medicine, National University of Ireland), Dr. Bethel Solomons (President of the Royal College of Physicians of Ireland), Dr. Andrew Ryans (President of the Irish Medical Association), and Dr. J. Deeny (Chief Medical Adviser, Department of Local Government and Public Health of Eire).

The London Medical Exhibition, which has been resumed after a wartime break, attracted considerable interest this week at the Royal Horticultural Hall. There was a display of the products of over one hundred firms which was supplemented by the exhibition of medical films. Every variety of drug, appliance, and book was on view and reflected the current interests and recent advances in medicine. The film shows, illustrative of some of the best in this rapidly expanding field of educational aid, were well attended. The publications of the British Medical Association were well represented. At a time when degrees and diplomas are of such interest to medical graduate and undergraduate alike it is to be regretted that there should be such a shortage of paper for recent medical books whose variety, format, and contents continue to bring credit to British medicine throughout the English-speaking world.

Plans for a new cancer hospital in New York, to cost nearly £750,000, have been completed. It will be known as the James Ewing Hospital for Cancer. The hospital will be twelve stories high and will contain laboratories, offices, classrooms, and wards. It will be administered by the City of New York.

Dr. Otto May, F.R.C.P., who died on Aug. 15, 1946, left £38,117 gross, with net personalty £37,580.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* an increase was recorded in the notifications of measles 490, whooping-cough 50, and dysentery 10. A decrease was reported in the number of cases of diphtheria 40, paratyphoid fever 23, and scarlet fever 22.

Measles is prevalent in only a few counties, and almost one-third of the total notifications were reported from the counties of Lancashire and Durham. The largest rises during the week were Lancashire 175, Middlesex 101, Northumberland 100, and Kent 52; the largest fall was Sussex 40. The only appreciable variations in the incidence of scarlet fever were a fall in Yorkshire West Riding 37 and a rise in Lancashire 20. The rise in the incidence of whooping-cough was most marked in Lancashire 54 and Yorkshire West Riding 29; the only decreases of note were Devonshire 24 and Derbyshire 23. Although a relatively large decrease in cases of diphtheria was recorded for the whole country the notifications in London were more than doubled by an increase of 18, giving the highest total for the metropolis since the middle of April. The only large returns for dysentery were London 15 and Yorkshire West Riding 11. The decline in the notifications of paratyphoid was due to a decrease in the outbreak in Yorkshire West Riding, where 51 of the 66 cases were notified; 38 cases of paratyphoid were notified in Sheffield C.B., and the origin of this outbreak has still not been established.

In *Scotland* infectious diseases were more prevalent, and the rises included measles 60, scarlet fever 51, whooping-cough 45, and pneumonia 17. Dundee had 130 of the 222 notifications.

In *Eire* the only changes of note were increases in whooping-cough 19 and diphtheria 11 and a decrease in diarrhoea and enteritis 9. The incidence of diphtheria 47 was the highest since April.

In *Northern Ireland* there were a further 25 cases in the outbreak of measles in Belfast C.B.

Week Ending November 9

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,323, whooping-cough 1,590, diphtheria 314, measles 3,987, acute pneumonia 601, cerebrospinal fever 46, dysentery 65, acute poliomyelitis 21, paratyphoid 30, typhoid 5.

No. 44

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 2.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946 (a)	(b)	(c)	(d)	(e)	1945 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	40	2	13	—	1	35	2	20	2	—
Deaths		—	—				1	1		
Diphtheria	274	34	95	47	8	585	32	188	93	23
Deaths	3	1	1		—	4	—	3	—	—
Dysentery	69	15	36	—	—	211	40	89	1	—
Deaths					—				—	—
Encephalitis lethargica, acute	—	—	1	—	—	—	—	1	—	—
Deaths		—					—			
Erysipelas			56	10	—			51	6	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				43					50	
Deaths	31	2	8		4	52	7	21	13	4
Measles*	3,374	119	222	54	32	496	32	52	105	4
Deaths	2	—	—		—	1	—	—	—	—
Ophthalmia neonatorum	63	7	16	—	—	61	5	10	—	—
Deaths										
Paratyphoid fever	66	2	2 (B)	1 (B)	—	6	1	1 (B)	—	—
Deaths	—	—	—		—	—	—	—	—	—
Pneumonia, influenzal	485	30	6	2	2	458	28	5	3	1
Deaths (from influenza)†	12	1	2		1	13	2	—	2	—
Pneumonia, primary			207	24				189	13	
Deaths		27			8		29		8	6
Polio-encephalitis, acute	2	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	25	1	1	6	—	24	1	—	2	1
Deaths		1					—			
Puerperal fever		2	13		—		4	6		—
Deaths										
Puerperal pyrexia‡	117	7	11	1	2	146	6	9	3	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,187	86	313*	49	41	1,819	149	317	25	49
Deaths	3	—	—		—	1	—	—	—	—
Smallpox	—	—	—	—	—	1	1	—	—	—
Deaths					—				—	—
Typhoid fever	6	2	—	5	5	9	—	1	3	2
Deaths	—	—	—		—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Whooping-cough*	1,549	83	188	56	37	1,041	82	62	28	5
Deaths	8	1	1		1	5	3	—	—	1
Deaths (0–1 year)	341	40	60		19	334	36	61	30	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,373	654	620		123	4,209	593	595	177	102
Annual death rate (per 1,000 persons living)			13·6					13·5	11·4	
Live births	8,920	1382	1060		260	6,641	862	800	385	276
Annual rate per 1,000 persons living			21·3					16·0	24·8	
Stillbirths	273	38	45			185	22	29		
Rate per 1,000 total births (including stillborn)			41					35		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

It is still not possible to publish the return of births and deaths for Eire for the week ended Nov. 2.

Letters, Notes, and Answers

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ANY QUESTIONS?

Buffalo's Milk and Tuberculosis

Q.—*It is commonly believed that buffalo's milk is safer than cow's milk from the point of view of tuberculosis. Is this correct?*

A.—Judged by experimental inoculation, there is no reason to believe that the Indian water-buffalo, which is found throughout India, Burma, and the East, and is used to some extent in the West Indies, is any less susceptible than the ordinary cow. On the other hand, in its native locality the buffalo does not seem to be exposed to any great extent to the risk of tuberculous infection, and what little information there is available suggests that in most parts of the world the incidence of tuberculosis in the buffalo is very low indeed. The chances, therefore, of finding tubercle bacilli in buffalo's milk must be small. There are some exceptions, however, since it is reported that in Egypt tuberculosis in buffaloes appears to be by no means infrequent; in fact, 60% of the buffaloes slaughtered in the Alexandria abattoir in 1937 showed macroscopic lesions of this disease.

Basal Anaesthesia

Q.—*What exactly is a basal anaesthetic?*

A.—A basal anaesthetic is a drug used to maintain a constant basal level of anaesthesia below which the depth is varied by the addition of another agent. The commoner term "basal narcotic" indicates the level usually considered desirable. This definition applies to nitrous oxide when used with, say, ether or intermittent injections of thiopentone, as well as to drugs having a prolonged action (bromethol, pentobarbital) which are given in a single dose. It is not applicable to the short-acting barbiturates when used for induction of anaesthesia—their action is more comparable to that of ethyl chloride before ether.

D.D.T. and Raw Vegetables

Q.—*With the wider use of D.D.T. to prevent parasites attacking vegetables, and in view of the fact that it is not destroyed by ordinary washing, is it likely to cause toxic manifestations if large quantities of raw vegetables are eaten? Is it affected by boiling? Has D.D.T. any action on protozoa or on worms?*

A.—D.D.T. is far less toxic to man than other insecticides (such as nicotine, lead arsenate, etc.) which have been in use for many years without danger to vegetarians. Because of its high toxicity to insects, only low concentrations are used in field applications. It is not affected by boiling water, but ordinary rinsing is likely to leach off a good proportion of the residue. Like any organic chemical, D.D.T. in excess is toxic to all forms of life; but it is specifically deadly to insects, crustacea, and certain other arachnids. Protozoa and worms are comparatively unaffected by it.

Penicillin and Normal Saprophytes

Q.—*To what extent does penicillin affect the symbiotic bacteria? If it destroys them, is there any lowering of resistance to intestinal or, in the female, to genital infections?*

A.—By symbiotic bacteria the questioner presumably means the normal saprophytic flora of the body. Most of these micro-organisms are entirely unaffected by penicillin administered systemically in ordinary doses. The drug does not reach the skin or the intestine. In the latter situation most of the normal bacteria are in any case resistant to penicillin. In the mouth, however, most of the species are penicillin-sensitive and may be affected by very large doses given systemically, or by sucking penicillin pastilles. It has been observed that after such treatment the suppression of normal types is followed by the appearance of penicillin-resistant organisms, such as coliform bacilli, which are not normally found. It is possible that such a transformation of the flora may occasion harm, but there is no clear evidence of this. We know of no observations on similar effects resulting from local treatment in the female genital tract; systemic treatment would be unlikely to cause any such change.

Infestation of Stored Flour

Q.—*I have been advised not to lay in a store of flour because it may become "mity" or "weevilly"? What are these "insects"?*

A.—"Mity" flour is due to infestation with *Tyroglyphus farinae*. The larval nymph of this mite is common in dust, especially in grain stores, and is spread from place to place on flour sacks. It may be carried about on flies and clothing and can survive for many months. "Weevily" flour is due to infestation with the larval stages of certain beetles, especially *Calandra granaria*, which feeds on, and lays its eggs in, grain.

Infectiousness of Infectious Diseases

Q.—*When do the infectious fevers become infectious? For instance, is a child who is developing mumps liable to infect other children during the whole twenty-one days of the incubation period?*

A.—This question cannot be answered dogmatically. The "infectiousness" of a fever is, in the first place, dependent upon the ability of the host to liberate organisms. In some diseases the organisms multiply superficially and, as it were, never leave the portal of entry. In such cases the host will be infectious from the time he receives the organism. Scarlet fever, tonsillitis, diphtheria, and meningococcal meningitis would fall into this category. In other diseases it is considered that the organisms multiply internally and are thus only able to be liberated when the infection is about to become manifest. Thus, measles, rubella, whooping-cough, and mumps become infectious towards the end of the incubation period as the virus begins to reappear in the oronasal secretions. Again, in chicken-pox and smallpox the primary infection is of the upper respiratory passages and the virus can be liberated towards the end of the incubation period. The evidence of the duration of the incubation period in smallpox contacts would suggest that smallpox is most infectious just before the rash makes its appearance.

In the second place, the "infectiousness" of a fever will depend on the amount and virulence of infecting agent that the host can liberate. Looked at in this way the case of mumps which developed after an incubation period of twenty-one days would show an absence of infectivity during the greater part of the early incubation period; during its last few days infectivity would gradually increase to become greatest during the onset of the disease, thereafter disappearing in a rapid diminuendo.

Exercise Tolerance

Q.—*Is there any standard exercise tolerance test? If so, will you please give details?*

A.—The standard test, which has been used widely since its introduction by Sir Thomas Lewis in relation to his work on "effort syndrome" during the 1914–18 war, is to make the patient step up on to a suitable stool or chair, 18 in. (45 cm.) high, twenty times during a period of about one minute, recording the heart-rate before, immediately afterwards, and subsequently at one-minute intervals, until the resting rate is resumed, or for five minutes. In normal healthy subjects, emotionally stable and at ease, the heart-rate returns to the resting level within one minute.

It should be clearly understood that this test is frequently abnormal in anxious, nervous subjects, and especially in those with an anxiety state, and it is often normal in patients with

established heart disease with good myocardial reserve. It is therefore of limited practical value in clinical medicine. On the other hand, it is very helpful where a combination of physical fitness and mental stability is required—e.g., in the selection of pilots, commando troops, and so on.

Use and Abuse of Pituitary Extract

Q.—*(a) It is categorically stated in most textbooks that posterior pituitary extract ("pituitrin") should never be used in the first stage of labour, but its use is widely recommended in certain cases of accidental haemorrhage during the first stage. Can you explain this contradiction? (b) Can oxytocin ("pitocin") be given to induce labour in cases of rupture of the membranes prior to the onset of labour where there is no disproportion or malpresentation?*

A.—Although the authors of some textbooks are not always consistent in their statements about the use of posterior pituitary extract before and during labour, the inconsistency is often more apparent than real. The dangers of giving such oxytocics are to both the mother and the child, and these should be borne in mind when considering this problem. Giving posterior pituitary extract may result not only in "contraction ring" formation, extensive cervical tears, and ruptured uterus, but also in death of the child from intrauterine asphyxia (when the placental circulation is impeded by violent and sustained contractions) and from intracranial injury. When the patient is not in labour and the uterus is relatively quiescent a violent response to pituitary extract is less likely than if labour has begun. Therefore those who advise against its use in the first stage of labour may still think it proper to give it to induce labour. Even for this purpose, however, it is falling into disfavour.

When the membranes have ruptured and a good deal of liquor has escaped the danger to the child is increased. This is true even when the membranes are ruptured artificially, and not many would regard it as safe to use oxytocin in such circumstances. Nevertheless the membranes are not as a rule ruptured artificially unless the foetal head is already low in the pelvis and the cervix is taken up and the prospects for easy delivery are good. When the membranes rupture prematurely of their own accord it often means that the presenting part is high and not fitting well—there may be a posterior position, etc. In general, therefore, the risks of giving oxytocin in such circumstances are greater than when the membranes have been ruptured artificially.

The case of accidental haemorrhage is a special one. Here it should be recognized that oxytocin is advised only if the uterus is quiet and not contracting. This often means that the power of the uterus to contract is impaired, so there is little chance of a violent response. Moreover, unlike delayed labour, the obstetrician is here faced with a complication which threatens the life of the patient—one where the risks are greater than the risks of giving oxytocin. Again, if the condition is so severe as to necessitate the use of posterior pituitary extract, the child is almost sure to be dead already, and the risk to the foetus from such treatment need no longer be considered.

Re-inoculation with T.A.B.

Q.—*Three years ago a patient had the first T.A.B. and tetanus toxoid injections, but never the subsequent ones. What is the present state of his immunity?*

A.—After a single injection of a foreign protein acting as an antigen, the cells concerned with the production of antibodies become sensitized so that a secondary injection, after an interval of months, or probably years, will evoke a good response in the way of antibody production. The important factor is that the first injection—the primary stimulus as it is called—should be adequate to prepare the tissues concerned to react to the secondary stimulus. In the case cited, this requirement will have been fulfilled if the first inoculations contained the recommended dosage of T.A.B. vaccine and of tetanus toxoid, and therefore similar injections should be sufficient to stimulate the necessary production of antibodies to give protection. The matter could, of course, be put to the test by withdrawing a sample of blood two to four weeks after injection to find if the serum contains a high titre of agglutinins to the typhoid and paratyphoid bacilli. If the person is going abroad to an area where enteric is more prevalent than it is here, he should be advised to have a further injection within six months' time.

Inheritance of Hodgkin's Disease

Q.—*A male patient, aged 30, has Hodgkin's disease. What is the likelihood of any future offspring being affected? He has had one healthy child conceived before the disease was apparent.*

A.—There is no likelihood of Hodgkin's disease being transmitted from the father to his child. One case is on record, although it is not above criticism, of maternal transmission. The number of authenticated instances of two or more cases in the same family are very few. It is safe to say that the disorder is neither hereditary nor communicable. There is no reason to anticipate that the child would be affected in any other way.

INCOME TAX

Car Transactions

W. G. is employed by a local authority and receives a car allowance. He sold his car in September, 1946, and bought another for £346 (including tax). The car allowance does not cover the full costs of running the car, including periodical replacement.

⁂ He is entitled to an initial allowance of 20% of the cost of the car excluding the tax (the tax ranks as an expense), and wear-and-tear allowance for 1946–7 at 25% per annum on the same figure. As against that he will have to bring in any income tax profit on the sale of the old car and, of course, any excess of the car allowance over the running costs. Some restriction may be due for private use of the car.

R. L. has been in general practice for some years. He bought car "A" in 1940 for £200 and car "B" in 1942 for £120. Car "A" was sold in October, 1946, for £475; car "B" will be sold shortly and replaced by car "C" to cost £*x*.

⁂ The liability for the current financial year will not be affected, but in calculating R. L.'s liability for the year to April 5, 1948, he can claim in respect of car "C" the "initial allowance" of 20% of £*x*, and the wear-and-tear allowance of 25% of £*x*. He will, however, be liable to a "balancing charge" on car "A" (apparently £475 − £200 = £275), and similarly as regards car "B" if a profit should be realized on the sale of that car—vice versa if a loss should be incurred.

J. R. holds an appointment as a medical superintendent. He sold his car in 1944 when serving in the R.A.M.C. His duties now necessitate the use of a car and he has purchased one for £500—presumably after April 5, 1946. What can he claim?

⁂ Nothing can be claimed in respect of the old car. Assuming that the necessity for using a car arises in the performance of the duties of the appointment, and not, for instance, in travelling from his residence to the hospital, he can claim in respect of the new car for 1946–7 (*a*) the initial allowance of 20% of £500 = £100, and (*b*) depreciation at 25% per annum of £500 for the period from the date when the car was brought into use to April 5, 1947.

Private Use of Car

X. Y. Z. runs two cars for professional and private use; his coupons are partly "basic" and partly "E" coupons. How can he deal with a request to indicate the proportion of professional to private use?

⁂ Assuming that both cars are used for both purposes and that records of the professional and private use are not kept, the only way of dealing with the request appears to be to estimate the respective mileages. Clearly no precise figures can be substantiated, but inspectors of taxes are aware of the difficulty and generally a reasonable figure is accepted without further evidence.

Cost of Locumtenent

R. W. employed a locumtenent during his summer holiday, providing "board and lodging for himself and his wife . . . equal to those of a first-class hotel." He asks what is the maximum amount that can be claimed as expenses.

⁂ The admission of a claim to deduct the cost of a locumtenent's services is based on practice rather than on any specific rule of law. R. W. might claim to deduct the general expenses of the establishment less some allowance for the fact that his own personal effects, etc., remain on the premises, but it is possible that the Revenue may contend that the claim should be limited to the additional cost of the establishment incurred by reason of the employment of the locumtenent.

LETTERS, NOTES, ETC.

Ichthyol

Surg. Lieut. G. B. HOPKINS (Portsmouth) writes: I note a reference to ichthyol in the *Journal* of Oct. 12 (p. 562), in response to a question upon the action of ung. ichthyol upon inflammation. The answer appears to follow the lines of the standard pharmacological textbooks, even that excellent and critical tome by Goodman and Gillman, *The Pharmacological Basis of Therapeutics*. The unanimity of the subject matter relating to ichthyol may be construed in two ways: it may be largely correct, or it may represent an uncritical textbook survival. A chemist friend of mine several years ago queried a possible relationship between ichthyol and the sulphonamides; this suggestion merits consideration. Ichthyol is obtained by neutralizing with ammonia the sulphonated product of the destructive distillation of a bituminous schist, formerly obtained from Tuscany, and now from wider areas of southern Europe. The schist is regarded by geologists as having originated by fossilization of sea birds' excreta—an explanation which, though often presented dogmatically, is presumably open to controversy. From a perusal of chemical dictionaries such as Allen's and Thorpe's, and much delving into past numbers of the *Pharmaceutical Journal*, the *Journal of the Chemical Society*, and the *Journal and Proceedings of the Institute of Chemistry*, I came to the conclusion two or three years ago that ichthyol had never been subjected to close chemical analysis, and I was able to find an empirical formula only. Ichthyol contains carbon, hydrogen, oxygen, nitrogen, and sulphur; and these facts, in association with the sulphonating process, which was introduced to increase the sulphur content in the belief that the efficacy of the product lay therein, render it possible that a para-amino benzene sulphonamide derivative may be present. As a student I was dissuaded by one of my professors from swallowing ichthyol and testing for conjugated sulphonamide excretion products. The late Col. Marsh, senior E.N.T. consultant to the Birmingham United Hospital, told me that he was first introduced to the use of ichthyol when he went to Birmingham from Barts., and that he considered it sufficiently useful to prompt him to prescribe it for the rest of his life. The *Index Medicus* gives numerous references, few of which throw any light upon a possible chemotherapeutic action of ichthyol; but I found that Russian gynaecologists had used ichthyol by intramuscular injection for the treatment of pelvic infection. I was unable to follow up this reference. As a matter of historical interest, I should be happy if the above facts and conjectures prompted one of the manufacturing pharmaceutical firms to investigate the chemical composition of ichthyol and its biological action. The topic is one which would have appealed to Sir Walter Langdon-Brown were he still alive. I write entirely from memory and regret that I am unable to give any references.

A Lethal Plastic Bib

Dr. J. H. FODDEN, pathologist to the Royal Salop Infirmary, Shrewsbury, writes: I would like to place on medical record a most tragic and unfortunate happening which determined the death of a three-months-old baby boy. The child had been placed in his cot for sleep, with a clean plastic bib tied loosely around his neck. The bib was small, and was designed to fasten only around the neck with two pieces of tape. It was almost as thin as tissue paper, and just as transparent. When the child was next seen he had been dead some hours. The thin plastic membrane covered his face, almost as completely as his skin. It took up every contour of the eyes, the nose, and the lips. The post-mortem examination which I made showed that the child had been asphyxiated. The bib seemed to become very slightly "tacky" after it had been warmed in my hand for some time. Then when it was placed over the child's face it spread quickly into the position of a close-fitting mask. I am quite sure that myself and my witnesses hope never to see a repetition of such an experiment in similar circumstances. I have the permission and support of Dr. W. B. A. Lewis, H.M. Coroner, Oswestry and District, to make notice of this death through misadventure.

Urobilinogen Excretion in Infective Hepatitis

Dr. M. WINTERNITZ (Prague) writes: The question on urobilinogen excretion in infective hepatitis ("Any Questions," Aug. 10, p. 215) prompts me to a few further remarks and a slight correction of the answer given. The aldehyde test, as it is called for brevity (*recte* Ehrlich's *p*-dimethylaminobenzaldehyde reaction), is used on the Continent not only in infective hepatitis but as one of the routine tests in every urine examination. Its usefulness, however, can only be appreciated if the urobilin metabolism in the human body is well understood. Ubg. (urobilinogen) is formed from bilirubin through the reducing action of the upper intestinal flora. It is partly excreted in the faeces, partly reabsorbed into the portal blood stream. But it is not to any considerable extent excreted into the bile, as your answerer maintains, but is reconverted into bilirubin in the liver cells. This can easily be shown by examination of the duodenal bile, aspirated from a Ryle's tube. Normally the aldehyde reaction is negative, whereas the more sensitive urobilin reaction is weakly positive. Large amounts of Ubg. found in the duodenal contents or in bilious vomits occur with increased haemolysis, with infections of the bile passages by certain bacteria, and with diffuse liver damage, as in Laennec's cirrhosis. The normal urine contains only traces of Ubg.—slightly more after meals. Pathological Ubg.-uria, due to failure of the liver to reconvert Ubg., is found not only in diseases of the liver, such as infectious hepatitis, but in most infectious diseases, particularly lobar pneumonia, scarlet fever, rheumatic carditis. Its absence in certain diseases such as typhoid is of diagnostic importance. The aldehyde test is an important guide in congestive heart failure. In chronic nephritis and malignant hypertension Ubg. is poorly excreted by the kidneys and even normal traces are usually absent. Thus in hypertensive heart failure a strongly positive aldehyde reaction will at once exclude malignant hypertension—important information for contemplated mercurial treatment. The absence of more than traces of Ubg. from urine and faeces in the presence of frank jaundice points to the absence of bile from the duodenum, while its presence excludes complete obstruction of the bile passages. The reappearance of Ubg. in the urine in such cases is a welcome sign of recovery. Incidentally the positive aldehyde reaction must not be confused with the red or pink sediment produced by the reagent in the presence of sulphonamides.

Recent Advances in Anaesthesia

Dr. J. B. GURNEY SMITH (Dunfermline) writes: I have read the article on "Recent Advances in Anaesthesia" by my learned teacher, Dr. C. Langton Hewer (Oct. 12, p. 531), with considerable interest. I was, however, a little surprised to observe that no mention is made of the use of intravenous anaesthesia and the administration of pentothal. I have always imagined that the introduction of this drug into surgical work represented a major advance. I can speak from personal experience, having had it myself, and I recall that I slept for some four to five hours following the operation, and that there was none of the unpleasant post-operative anaesthetic sequelae usually associated with inhalation and spinal anaesthesia. Perhaps Dr. Langton Hewer would be good enough to enlighten me as to how "recent" is pentothal anaesthesia. It certainly seems to have established itself in the modern anaesthetist's armamentarium.

Rail Travel for the Sick

Major F. A. EVANS, R.A.M.C., writes: Recently I made use of a facility which is perhaps not as well known as it might be—namely, the moving of bed-ridden patients by rail. I accompanied an aged relative with complete hemiplegia from Euston to North Wales, using a special saloon with a very comfortable single bed. Settee and arm-chair for the use of the sister in charge, independent accommodation for relatives and luggage compartment, provision of electric kettle, bed-pans, etc., all gave an air of self-contained privacy. Meals, of course, could be obtained from the dining-car. The patient emphasized how perfectly comfortable and contented she had felt throughout the journey.

Disclaimer

Dr. A. KENNETH YOUNG writes from Tarbert, Argyll: I wish to disclaim responsibility for a paragraph on the back page of the *Scottish Sunday Express* of Nov. 10, in which I was quoted under the heading "Milk Revolt by Doctor." This paragraph was intended to represent an interview with me, when, in fact, it was a reconstruction of a letter of mine which appeared in the *Scotsman* a few days earlier and in the *British Medical Journal* later. Following the letter in the *Scotsman* an *Express* reporter telephoned me to ask how I intended to continue supplying priority milk certificates as before, and I explained to him that I should do so simply because I had always adhered rigidly to the requirements of the priority schedule and regulations. He then suggested that I might grant him an interview at a future date, but I told him plainly that such could only be the case if my name was withheld in accordance with professional etiquette. No further interview took place, and the next thing I knew was the somewhat sensational paragraph already referred to. I have already been in touch with the paper concerned and they are most apologetic.

An Error Corrected

Surg. Capt. H. PARRY-PRICE, R.N.V.R., writes: Dr. Langton Hewer has drawn my attention to an error appearing in my recently published book, *Practical Anaesthetics*. On page 69 it is stated, "Hewer says that the mortality in toxic goitre operated upon with auricular fibrillation is 30%." It is quite unnecessary for me to state that this should read 4.7%, and I apologize to Dr. Hewer for attributing such a statement to him.

Correction

In an annotation on "Insects, Mites, and Asthma" (Aug. 31, p. 304) mention was made of a report by "Ordtmann." This should have been "Ordman," and refers to Dr. David Ordman of the South African Institute for Medical Research.